Rock Island Area
October 2012 Removal Assessment
Trip Report
Douglas County, Washington

TDD: 11-07-0002
DCN: TO-001-11-07-0002-DCN1519

Prepared by:
TechLaw, Inc.
Contract EP-S7-06-03

Region 10

START-3
Superfund Technical Assessment and Response Team

Submitted To:

Kathy Parker, On-Scene Coordinator
United States Environmental Protection Agency, Region 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

February 2013

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LIST OF ACRONYMS

Acronym	Definition
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
the District	Chelan-Douglas Health District
EPA	United States Environmental Protection Agency
FB	Field Blank
FCCD	Foster Creek Conservation District
GW	Groundwater
ID	Identification number
LLC	Limited Liability Corporation
Ma	million years ago
MCL	Maximum Contaminant Level
mg/L	milligram per liter
MTCA-A	Model Toxics Control Act-Method A
NPDES	National Pollutant Discharge Elimination System
NCWP	North Central Washington Post
OSC	On-Scene Coordinator
RI	Rock Island
RSL	Regional Screening Level
SPAF	Sampling Plan Alteration Form
SSID	site spill identification number
SSSP	Site Specific Sampling Plan
START-3	Superfund Technical Assessment and Response Team-3
TDD	Technical Direction Document
TechLaw	TechLaw, Inc.
µg/L	microgram per liter
U.S. (US)	United States
USGS	United States Geological Survey
WDNR	Washington Department of Natural Resources
WDOE	Washington Department of Ecology

EXECUTIVE SUMMARY

During October of 2012, the Environmental Protection Agency (EPA) Removal Program performed sampling for the Removal Assessment in the Rock Island area, Douglas County, Washington. This action was conducted to collect additional groundwater data to support the Removal Assessment activities initiated in July 2011 in response to an EPA Public Petition from a local resident.

The follow-up activities to the Removal Assessment included the collection of groundwater samples by the Superfund Technical Assessment & Response Team (START-3) and the submittal of groundwater samples by local residents. Laboratory analysis of arsenic was performed for all groundwater samples to determine if concentrations of arsenic in groundwater exceeded applicable risk-based action concentrations. One sample was also analyzed for total metals plus uranium. Field screening for nitrate and nitrite was conducted for all samples. This report describes the activities and summarizes the analytical results obtained during the follow-up field event.

1.0 PLACE VISITED

Site Location:	Rock Island area, Douglas County, Washington
SSID:	10KP
CERCLIS ID:	WAN001002939
Latitude/Longitude:	47.3753953, -120.1623631
Dates of Visit:	October 30 and 31, 2012

The Rock Island Removal Assessment was conducted for multiple private properties near Rock Island, Washington, north of the Columbia River. An initial site visit by the On-Scene Coordinator (OSC) was performed in June 2011 and the first removal assessment sampling event was conducted in July 2011. Follow-up groundwater sampling activities were conducted on October 30 and 31, 2012. A map showing the location of removal assessment activities is presented in Figure 1.

2.0 PURPOSE

The primary objective of this field work was to collect additional data to determine whether residents in the Rock Island area are being exposed to potentially contaminated groundwater. The Removal Program conducted the field event in October 2012. Concurrently, the EPA Site Assessment Program mobilized to the area to conduct a Site Inspection (SI) of the former Rock Island Silicon Plant facility, as well as limited sampling at Rock Island area residences.

Follow-up activities for the Removal Assessment included the collection of environmental samples for laboratory analyses, data management, and preparation of a summary report providing the associated results.

3.0 INVOLVED PARTIES

Agency	Name, Title	Contact Information
U.S. EPA	**Kathy Parker** **OSC**	USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101 206-553-0062 parker.kathy@epa.gov
U.S. EPA	**Curt Black** **Hydrogeologist**	USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101 206-553-1262 black.curt@Epamail.epa.gov
TechLaw, Inc.	**Amy Dahl, Project Manager**	101 Yesler Way, Suite 600 Seattle, WA 98104 206-577-3050 adahl@techlawinc.com

Agency	Name, Title	Contact Information
TechLaw, Inc.	**Amanda Rohrbaugh**	101 Yesler Way, Suite 600 Seattle, WA 98104 206-577-3054 arohrbaugh@techlawinc.com

4.0 BACKGROUND

In 2005, a Rock Island area resident expressed concerns to Chelan-Douglas County Health Officials about a potential connection between the high concentrations of arsenic measured in his/her private well and the historic operations at the silicon manufacturing plant nearby. The arsenic concentrations in the resident's well have continued to remain more than ten times higher than the EPA Maximum Contaminant Level (MCL, 10 micrograms per liter [µg/L]) (NCWP 2006; EPA 2009a). While arsenic is known to occur naturally in this area, it was unclear if the concentrations in the groundwater samples can be attributed to natural sources or if anthropogenic activities have contributed to elevated concentrations.

In June 2011, the EPA received a petition to investigate the source of arsenic contamination in groundwater (EPA 2011a). In response to the petition, the EPA OSC and START-3 traveled to Rock Island in July 2011 to initiate removal assessment activities, collecting groundwater, soil, and sediment samples from three private properties as well as areas along Highway 28. Elevated concentrations of arsenic were detected in two of the three groundwater samples and in all four soil samples (TechLaw 2012).

In March 2012, the Chelan-Douglas Health District (the District) sent letters to 152 residents near Rock Island that are not on public water. Forty-five residents submitted well water samples for arsenic analysis. Thirty-four residents released their arsenic results to the District. Six of thirty-four arsenic results exceeded the MCL. Arsenic results from the 2011 Removal Assessment, the District's event, and the October 2012 sampling event are shown on a map in Figure 2.

5.0 REGIONAL GEOLOGY AND HYDROGEOLOGY

The Columbia Basin, also known as the Columbia Plateau, is a physiographic province that covers eastern Washington, southwestern Idaho, and northern Oregon. The Columbia Basin is characterized by incised rivers, extensive plateaus, and anticlinal ridges. Very little is known about pre-Miocene basement that lies beneath the Columbia River basalts, particularly in the central and western parts of the Columbia Basin (WDNR 2011).

The Columbia basin province is best defined by the areal extent of the Miocene Columbia River Basalt Group rocks. The group consists of four flood basalt formations, the oldest of which is the Imnaha Basalt that formed about 17.5 million years ago (Ma),

followed by the Grande Ronde Basalt (16.5 to 15.6 Ma), the Wanapum Basalt (15.6 to 14.5 Ma), and lastly the Saddle Mountains Basalt (14.5 to 6 Ma) (WDNR 2011). Each of the four formations of the Columbia River Basalt Group can be further divided into various subunits or members. The Columbia River Basalt Group formations were formed by lava flows extruded from vents and fissures in the east and southeast areas of Washington. Between major extrusive events, various processes such as subsidence, deformation, erosion, and sedimentation also impacted the landscape (Whitman 2011).

After volcanism ceased in the Columbia Basin, other geologic processes continued forming the landscape. In the western portion of the Columbia Basin, the Columbia River Basalt Group formations have been deformed by tectonic forces and folded into a series of giant anticlines that strike east-west to southeast-northwest. This region is called the Yakima Fold Belt subprovince. Lake Missoula, which formed due to a glacial ice dam, covered roughly 7800 square kilometers of western Montana and was approximately 600 meters deep at the ice dam (WDNR 2011). The ice dam failed various times, releasing jökulhlaups (glacial outburst floods) which swept across parts of Idaho, Washington, and Oregon and out into the Pacific Ocean (Whitman 2011). In eastern Washington the floods created the Channeled Scablands. The Quaternary period involved various types of sediment deposits, including eolin, glacial, fluvial, and lacustrine deposits.

The general movement of water in the aquifer system is from recharge areas near the edges of the plateau toward regional drains, such as the Columbia River. In places, tight folds or faults or both and gently dipping layers of rock sloping opposite the direction of groundwater flow can impede the movement of groundwater (USGS 2011). Groundwater moves from topographically high margins of the plateau through each basalt unit toward major surface drainages, which suggests that groundwater flow in the Rock Island area is to the south toward the Columbia River.

The hydraulic gradient is affected by heavy irrigation in the area. In the summer months, groundwater flow through the town of Rock Island was estimated to be generally towards the southeast. Based on surface water elevation in the Columbia River, Putters Pond, and Hammond Lake at the east end of Rock Island, groundwater flow from the Columbia River migrates north towards Putters Pond and then east towards Hammond Lake, which has limited water exchange with the Columbia River (FCCD 2010).

Based on information from the District, there are approximately 152 water wells in the Rock Island area that are not on the Rock Island water supply system.

6.0 ACTIVITIES

The following activities were undertaken during the additional Removal Assessment activities:

- Mobilization
- Groundwater Sample Collection

- Demobilization
- Sample Shipment to Laboratory
- Quality Assurance Review
- Trip Report preparation

7.0 FIELD ACTIVITY SUMMARY

On October 29, 2012, EPA and START-3 mobilized from Seattle, Washington and travelled to the Rock Island area to begin field work on October 30, 2012. Working under the direction of EPA OSC Kathy Parker, START-3 field operations included sampling groundwater at residential properties located throughout the Rock Island area and staffing a temporary location at a local truck stop in accordance with the Site Specific Sampling Plan (SSSP) and Site Specific Sampling Plan Alteration Forms (SPAFs) presented in Appendix D (TechLaw 2011, 2012b, and 2012c). For two days, residents could obtain sample bottles and instructions from START-3 staff and return the filled sample bottles for analysis. Sample Collection Forms were filled out for each sample and are presented in Appendix E. Following standard operating procedures, START-3 collected nine of 22 groundwater samples for analyses of arsenic by method 200.8. Sample GW-RI-14 was analyzed for total metals plus uranium by methods 200.7 and 200.8. The 13 groundwater samples collected and submitted by Rock Island residents were also analyzed for arsenic by method 200.8. All samples were analyzed by the EPA Region 10 Laboratory in Manchester, Washington. In addition, water quality test strips were used to measure nitrate and nitrite levels in the field.

For quality control, one field duplicate (GW-RI-98) and one field blank (GW-RI-FB) were collected during the field event.

The photographic log and field logbook are presented in Appendices A and B, respectively.

8.0 SCREENING LEVEL EXCEEDANCE RESULTS

Table 1 summarizes the analytical results for arsenic obtained during the follow-up Removal Assessment sampling, and Table 2 summarizes the total metals plus uranium results for GW-RI-14. The concentrations of arsenic in four groundwater samples exceed the MCL. These samples include GW-RI-10 (15.8 µg/L), GW-RI-13 (13.8 µg/L), GW-RI-15 (22.4 µg/L), and GW-RI-18 (11.2 µg/L). No metals concentrations in GW-RI-14 exceed MCLs, but concentrations of arsenic and manganese exceed their respective Regional Screening Levels (RSLs) for tapwater.

The analytical data and quality assurance reviews are presented in Appendix C.

9.0 SUMMARY AND CONCLUSIONS

On October 30 and 31, 2012, additional Removal Assessment sampling was performed to evaluate the potential contamination at residential properties in the Rock Island area, Douglas County, Washington. During the sampling event 23 samples (including one duplicate sample and one field blank) were collected from residential properties in the Rock Island area. Tables 1 and 2 summarize the analytical results obtained during the additional Removal Assessment sampling.

Arsenic concentrations in four groundwater samples exceed the EPA MCL (EPA 2009a).

A copy of this Removal Assessment report is being provided to the EPA Region 10 Site Assessment Program for consideration and inclusion in the Site Inspection being conducted by EPA for the former Rock Island Silicon Plant facility located in Rock Island, Washington.

EPA recommends further investigation to locate the source of the metals contamination in Rock Island area soil and groundwater.

10.0 REFERENCES

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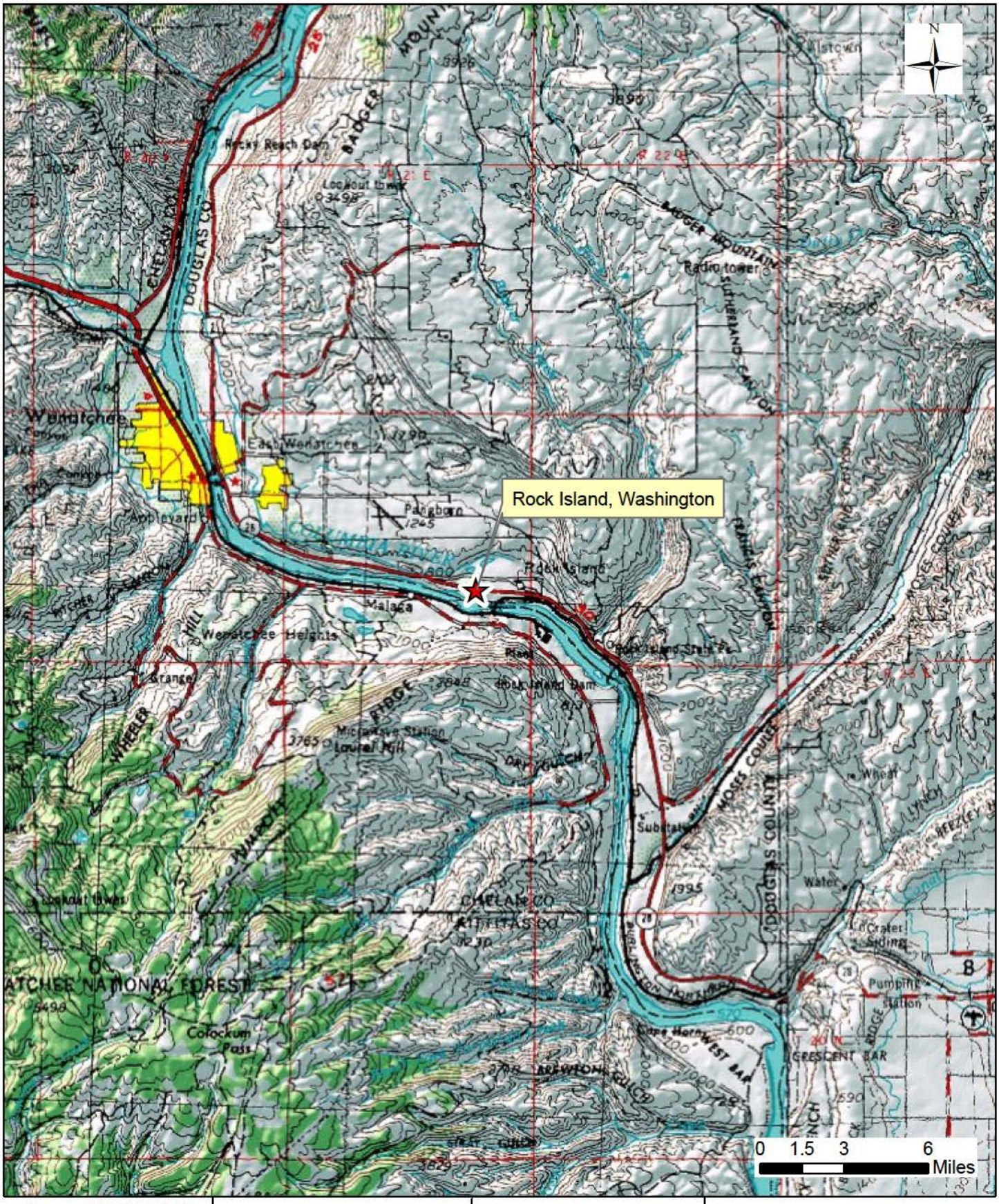

Source: USCGS DRG
Mosaic from USDA 2002
Created by: TLB
Date: 1/25/2013

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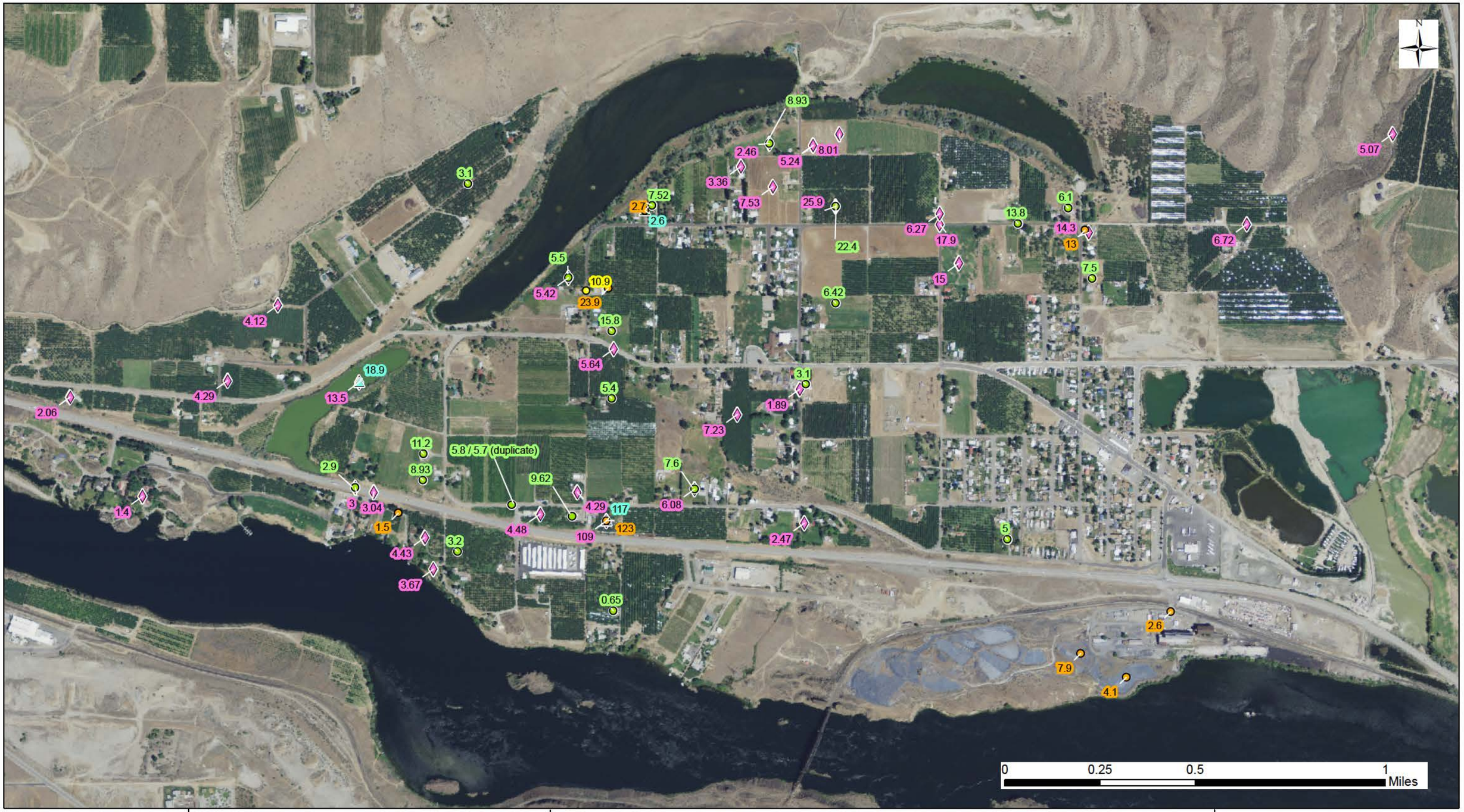
Explanation of Symbols

★ Site Location

Figure 1
Site Location Map
Rock Island
Rock Island, Douglas County, Washington



Source: USGS DRG
2009 USDA Mosaic
Created by: TLB
Date: 1/10/2013

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Explanation of Symbols

TechLaw 2012
- Arsenic
- Ecology & Environment 2012
- Reported by Homeowner

TechLaw 2011
- Arsenic

County 2011
- Arsenic

Arsenic results are in micrograms per liter (ug/L).

Figure 2
Arsenic Results by Location
Rock Island
Rock Island, Douglas County, Washington

APPENDIX A

PHOTOGRAPHIC LOG

PHOTOGRAPH #01

Description: Pump house on property where sample RI-GW-04 was collected.

Taken by:	Amanda Rohrbaugh, TechLaw Inc.	Direction:	East
Witness:	Amy Dahl, TechLaw Inc.	Date:	October 30, 2012

PHOTOGRAPH #02

Description: Interior of pump house where RI-GW-04 was collected.

Taken by:	Amanda Rohrbaugh, TechLaw Inc.	Direction:	North
Witness:	Amy Dahl, TechLaw Inc.	Date:	October 30, 2012

PHOTOGRAPH #03

Description: Well located in the front yard of the property where sample RI-GW-05 was collected. Sample was collected from the kitchen faucet.

Taken by:	Amanda Rohrbaugh, TechLaw Inc.	Direction:	Northeast
Witness:	Amy Dahl, TechLaw Inc.	Date:	October 30, 2012

PHOTOGRAPH #04

Description: Interior of pump house on property where sample RI-GW-14 was collected.

Taken by:	Amy Dahl, TechLaw Inc.	Direction:	Southeast
Witness:	Amanda Rohrbaugh, TechLaw Inc.	Date:	October 31, 2012

PHOTOGRAPH #05

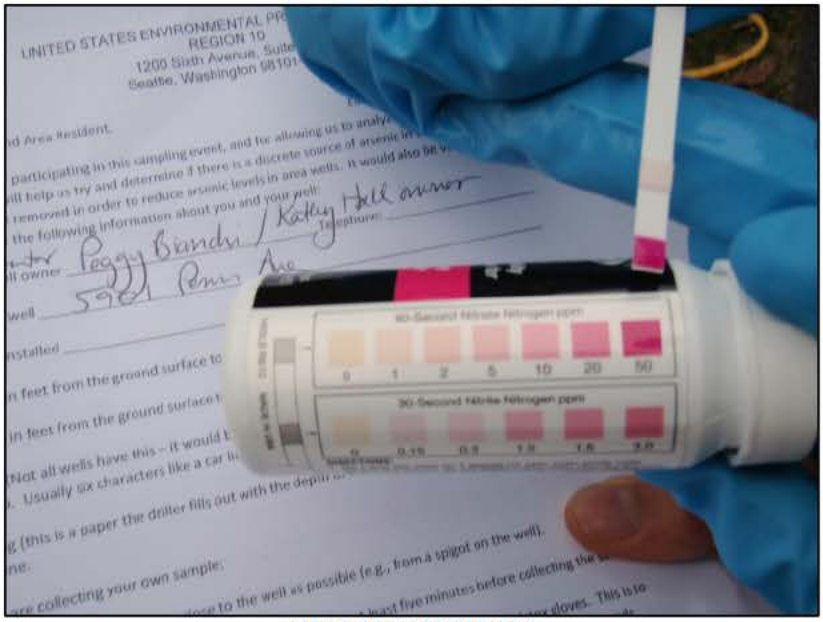
Description: Exterior of pump house on property where sample RI-GW-14 was collected.

Taken by:	Amy Dahl, TechLaw Inc.	Direction:	South
Witness:	Amanda Rohrbaugh, TechLaw Inc.	Date:	October 31, 2012

PHOTOGRAPH #06

Description: Sampling site for RI-GW-15. Spigot is in the foreground and well in the background, adjacent to wooden post.

Taken by:	Amanda Rohrbaugh, TechLaw Inc.	Direction:	Southeast
Witness:	Amy Dahl, TechLaw Inc.	Date:	October 31, 2012



PHOTOGRAPH #07

Description: High nitrate strip result from sample RI-GW-15.

Taken by:	Amanda Rohrbaugh, TechLaw Inc.	Direction:	South
Witness:	Amy Dahl, TechLaw Inc.	Date:	October 31, 2012

PHOTOGRAPH #08

Description: Sampling site for RI-GW-16.

Taken by:	Amy Dahl, TechLaw Inc.	Direction:	Southeast
Witness:	Amanda Rohrbaugh, TechLaw Inc.	Date:	October 31, 2012

PHOTOGRAPH #09

Description: Sampling site for RI-GW-99. The well is next to the porch of a house.

Taken by:	Amy Dahl, TechLaw Inc.	Direction:	West
Witness:	Amanda Rohrbaugh, TechLaw Inc.	Date:	October 31, 2012

PHOTOGRAPH #10

Description: Sampling site for RI-GW-97 and field duplicate RI-GW-98. Spigot is in the foreground, and well house is in the background.

Taken by:	Amy Dahl, TechLaw Inc.	Direction:	West
Witness:	Amanda Rohrbaugh, TechLaw Inc.	Date:	October 31, 2012

PHOTOGRAPH #11

Description: Pump house and well for sample RI-GW-97 and field duplicate RI-GW-98.

Taken by:	Amy Dahl, TechLaw Inc.	Direction:	South
Witness:	Amanda Rohrbaugh, TechLaw Inc.	Date:	October 31, 2012

APPENDIX B

FIELD LOGBOOK

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CONTENTS

7/8/2011 Rock Island

0812 TechLaw field team (A. Dahl, L. Wilson and A. Rohrbaugh) arrive at a park along highway 28 and the river (it is located between them) in hopes of collecting a background soil sample.

0841 A. Dahl collects RI-0711-BG-01a from a depth of 0 to 6 in. soil is silty and light brown in color. GPS coordinates collected by A. Rohrbaugh photo #9 facing east by A. Rohrbaugh

0852 L. Wilson collects RI-0711-BG-01b from a depth of 3 to 3.5 ft. Soil is silty and light brown in color.

note: this sample is a background location, from Kirby Billingsley Hydro Park. (b) (6) is in charge of the application of herbicides and pesticides for the park. He told A. Dahl that no pesticides were applied to the area where the background sample was collected. (b) (6) phone number is (b) (6). There are some orchards located on the opposite side of highway 28.

0934 arrive at the home of Grant, located

7/8/2011 Rock Island

off of highway 28, on Riverside Drive.

0937 A. Rohrbaugh collects RI-0711-SS-01a at a depth of 0 to 6 in and a duplicate RI-0711-SS-02. Soil is silty and chocolate brown in color. GPS coordinates collected by A. Rohrbaugh. photo #10 facing east by A. Rohrbaugh

0947 L. Wilson collects RI-0711-SS-01b from a depth of 3 to 3.5 feet. Soil is silty and dark brown, but slightly lighter than the surface soil

note: the groundwater well is located about five to seven feet from the soil sample location (to the west of the soil sample) photo #11 facing west by A. Rohrbaugh of the well. The faucet for water sample location is located north east of the well, at home of grant johnson's neighbor (house to the east). faucet is on the east wall of the home.

0952 A. Dahl calibrates horiba meter.

0955 A. Dahl collects RI-0711-GW-01 from the faucet, GPS cordinates of the faucet by A. Rohrbaugh. Photo #12 facing west by A. Rohrbaugh. A. Dahl collected a duplicate

7/8/2011 Rock Island

from the faucet as well, sample ~~RI-0711~~ 1R RI-0711-GW-02. Address of the home is (b) (6) (neighbor of (b) (6) (b) (6) to east).

10:15 talk with (b) (6) and his neighbor about where to sample near the plant.

10:38 L. Wilson does radiation background in (b) (6) orchard.

Det 2, set to F and rate meter 259 kC/m highest read reading ranging between 200 kC/m and 259 kC/m

Det 1, set to F and rate meter steady at 0 ~~kC/m~~ 1R C/m

each reading was taken over a period of about 3 minutes

10:50 pack up and leave the property of (b) (6)

11:12 A. Rohrbaugh collects RI-0711-SS-03 from 0 to 6 in, east of the pond, located between highway 28 and the railroad tracks. photo #13 facing west by A. Rohrbaugh, GPS by A. Rohrbaugh. soil is silty with bits of gravel.

7/8/2011 Rock Island

L. Wilson uses radiation meter at this location:

Det 2, set to F and rate meter readings between 5.1 kC/m and 5.7 kC/m

Det 1, set to F and rate meter readings between 51 and 70 C/m

11:35 L. Wilson collects RI-0711-SD-01 a sediment sample along the edge of the pond. pond is located between highway and railroad. Sediment is dark brown, sandy, rocky, vegetated, saturated. GPS coordinates by A. Rohrbaugh photo #14 facing northwest by A. Rohrbaugh.

1208 A. Dahl standardizes the XRF meter

XRF Run	time	sample	Pb (ppm) Result
1	1208	standardize	—
2	1210	Blank (teflon block)	—

battery problem - replace battery

1216 XRF still not work, A. Dahl does a soft reset of the PDA device on the XRF

1220 photo #15 by A. Rohrbaugh of rock from Grant Johnson that he found along the river near the silica plant.

7/8/2011 Rock Island

3	12:20	Blank (teflon block)	all ND
4	12:22	Z710 standard	—
5	12:23	Rock Top W/deposit	78
6	12:26	Rock Bottom	<14

notes: Run 5 As - 31 ppm
Pb - 78 ppm
Zn - 115 ppm
Run 6 As - <12 ppm
Pb - <14 ppm
Zn - 101 ppm
the deposit on top is blue-gray in color but is only found on one side, the rest of the rock is dark brown.
last run was #7 at 12:28 of the blank (teflon block) which was all ND.
12:33 Techlaw field team leaves site.
note: please see logbook #2 for the information about groundwater sample collection.

7/8/2011 Amanda Rohrbaugh

10/30/2012 Rock Island

1025 Arrive at BJ's truck stop to set up truck (A. Dahl & A. Rohrbaugh).
1104 first resident arrives to pick up sample bottle RI-01, name is (b) (6). Mentioned his well has Hg.
1115 OSC K. Parker arrives at the truck.
1124 second resident arrives to pick up bottle. (b) (6), so he is concerned. He did not submit a sample to the county for sampling. asbestos also present at his home. His bottle number is RI-02 and his name is (b) (6)
1137 hydrogeologist arrives at the truck, C. Black.
1206 (b) (6) returns with his well water sample, RI-02.
12:14 A. Dahl uses strips to test for nitrates and nitrites. Nitrate was 10 ppm nitrite was 0 ppm.
1224 A. Dahl adds acid to preserve the sample.
1328 third resident arrives to pick up a

10/30/2012 Rock Island

sample bottle. Sample bottle number RI-03, resident name is (b) (6) (b) (6) She says three households obtain their water from the well, and she will try to provide all the addresses

1555 A. Dahl and A. Rohrbaugh pack up truck to travel door to door, asking permission to collect water samples.

1602 arrive at (b) (6) to knock on the door, but they are on city water.

1605 a staff member of the school across the street from 1555 Central approached and said we could have a sample from the school tomorrow, but she is not sure if the school is on city water or well water. She said we could always stop by and speak with the custodian about it.

1612 arrive at (b) (6) to knock on the door, and the resident gave us permission to sample (b) (6). The pump house is located north of her residence and she said the other three homes between hers and the corner have access rights in the deeds but do not use it.

10/30/2012 Rock Island

1620 A. Dahl begins purging the well and collects GPS coordinates, and A. Rohrbaugh took photo #1 facing E of the pump house and photo #2 facing N of the pump house interior.

1624 water quality data:

13.93 °C	12.55 mg/L DO
7.40 pH	0.376 g/L TDS
-28 pHmV	0.3 ppt
111 ORPmV	0.0 ft
0.587 mS/cm	
0.0 NTU	

1629 A. Dahl uses strips for nitrate/nitrite, nitrate 5 ppm and nitrite 0 ppm.

1631 A. Dahl collects sample RI-04.

1644 arrive at another residence to request permission to sample, 1 Coles 1/2 Center St, but they do not know if there is a well or not. We also knocked at (b) (6), but there was no answer.

1650 knock at (b) (6) but they said (b) (6) owns the property and had submitted samples to the county for analysis.

10/30/2012 Rock Island

1654 knock at (b) (6) but there was no answer.

1656 knock at (b) (6) and they give us permission to sample from their kitchen sink. Resident is (b) (6)

1704 Water Quality data:

14.84 °C	3.62 mg/L DO
7.10 pH	0.414 g/L TDS
-11 pHmV	0.3 ppt
142 ORPmV	0.0 ɑt
0.6447 ms/cm	
0.0 NTU	

1708 Nitrate/nitrite strip: nitrite 0 ppm nitrate between 5 and 10 ppm

1709 A. Dahl collects RI-05.

1715 A. Dahl collects GPS coordinates, A. Rohrbaugh takes photo #3 facing NE of the owner's well, located in front yard along Rock Island Rd.

1720 speak to resident at (b) (6) who is on city water, but she recommended her landlord who lives behind her at (b) (6)

1725 Speak w/ resident at (b) (6) but they are also on city water. They

10/30/2012 Rock Island

do have a well, but water has been blown out of the lines already, so we can not get a sample.

1740 leave to return to BJ's truck stop.

1803 resident (b) (6) arrives to obtain a bottle and her bottle is RI-06.

1812 resident (b) (6) arrives with a gallon of water (container has held distilled water only), and completes a form (RI-07).

1816 (b) (6) returns bottle RI-01. A. Dahl uses nitrate/nitrite strips. nitrite 0 ppm nitrate 10 ppm.

1823 Paula arrives to collect bottle RI-08 for (b) (6) household.

1824 A. Dahl uses nitrate/nitrite strips on RI-07 nitrite 0 ppm, nitrate 10-20 ppm

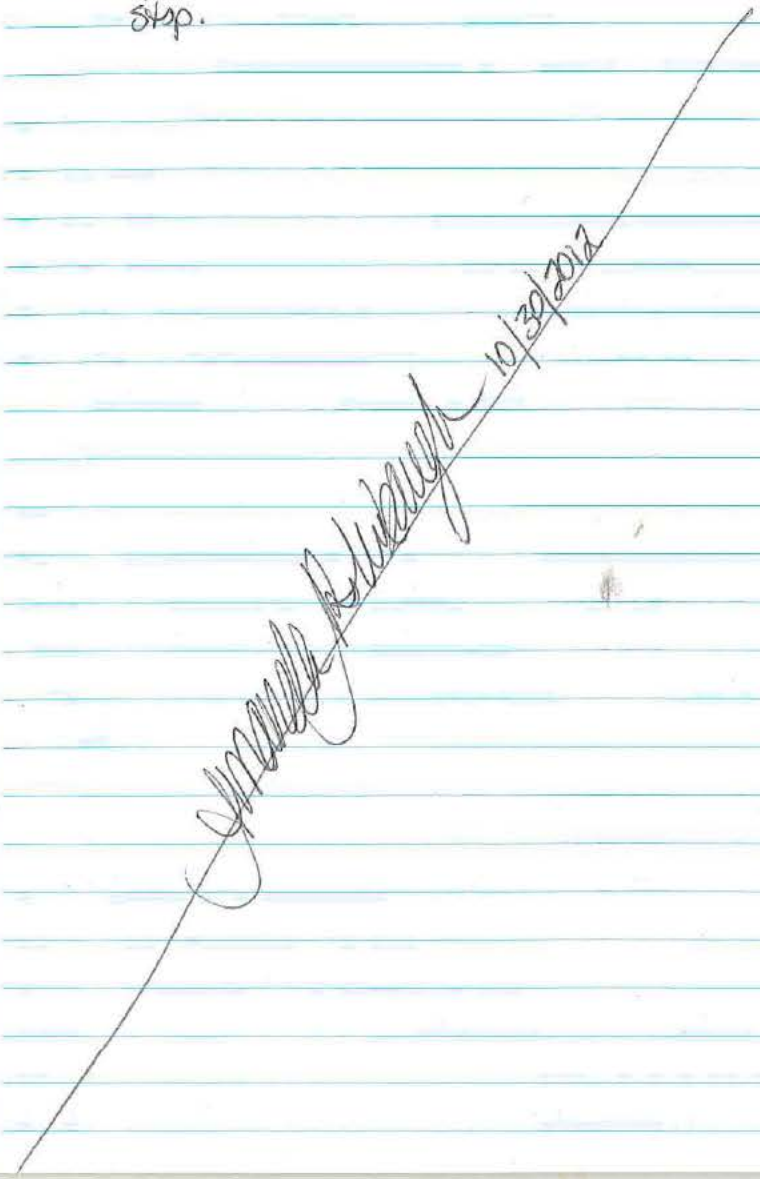
1833 (b) (6) resident returns RI-06 and A. Dahl takes nitrate (5-10 ppm) and nitrite (0 ppm)

1835 (b) (6) arrives to get a bottle for his neighbors (the others), bottle RI-09.

1845 A. Dahl collects field blank RI-FB (field blank), completes nitrate (0 ppm) and nitrite (0 ppm) tests and preserves the sample.

10/30/2012 Rock Island

2003 pack up truck and leave BJs truck stop.



10/31/2012 Rock Island

1040 A. Dahl and A. Rohrbaugh arrive at BJ's truck stop to set up truck.

1123 (b) (6) arrives with a copy of the county sampling results for her well. The results were unlisted at her request, so she had received a letter regarding our sample event for EPA and wanted to know whether a second sample was needed.

1204 resident (b) (6) arrives to obtain a sample bottle, bottle RI-10.

1210 resident (b) (6) arrived to obtain a bottle, bottle RI-~~10~~ 11. The well has already been sampled during the county event, but they would like to submit a sample to us.

1220 (b) (6) returns bottle RI-10. A. Dahl does nitrate/nitrite test and nitrite 0 ppm nitrate 10-20 ppm.

1227 resident (b) (6) Returns bottle RI-03, A. Dahl does nitrate/nitrite test, nitrite 0 ppm, nitrate 1-2 ppm.

1235 resident (b) (6) arrives to obtain a bottle, bottle RI-12.

1317 (b) (6) returns RI-11. A. Dahl

10/31/2012 Rock Island

does nitrate/nitrite test, nitrite 0 ppm, nitrate 10 ppm.

1318 (b) (6) returns RI-12 and A. Dahl does nitrate/nitrite test, nitrite 0 ppm, nitrate 10 ppm

1339 (b) (6) returns RI-08 for the household of (b) (6) A. Dahl does nitrite/nitrate test. Nitrate 10 ppm, nitrite 0 ppm. note that sample was luke warm.

1345 resident (b) (6) arrives to obtain sample bottles for his home and his in-laws home, bottles RI-13 and RI-14. RI-13 is for his household and RI-14 is for his in-laws.

1405 (b) (6) returns RI-13, but gave back RI-14 empty because his mother-in-law participated in the county sampling. A. Dahl takes nitrites (0 ppm) and nitrates (10-20 ppm).

1430 A. Dahl and A. Rohrbaugh leave BJ's truck stop to go knock on doors.

1440 arrive at the home of (b) (6) (b) (6) Penn Ave, but ~~left~~ AR no one was home.

1451 A. Dahl left a message on his phone.

~~1551~~ AR knock at (b) (6) Del Mar Pl., but no answer.

10/31/2012 Rock Island

~~1555~~ AR knock at (b) (6) Del Mar Pl., they are 1453 on city water, they have an irrigation well but it is off for the winter and cannot 1457 be sampled.

~~1557~~ AR knock at (b) (6) Del Mar Pl., but no answer.

~~1559~~ AR knock at (b) (6) Del Mar Pl., ~~but~~ AR but 1459 the owner was not present (a baby-sitter was) and ~~she~~ AR she does not know if they have a well.

1503 K. Parker, OSC, called us to bring Horiba to get water quality at (b) (6) Ohio St.; Leave Del Mar Pl. to drive to Ohio St.

1515 begin running water to collect water quality data. well is located in a pump house, located to the SW of her home.

1519 A. Dahl takes photo #4 of the interior of the pump house facing SE and A. Rohrbaugh takes photo #5 of the exterior of the pump house facing south.

1523 this sample, RI-~~13~~ 14 AR, needs to be analyzed: TAL metals and uranium.

1527 A. Dahl takes nitrite (0 ppm) and

10/31/2012 Rock Island

nitrate (0 ppm), and water quality:

14.57 °C	0.00 mg/L DO
7.31 pH	0.297 g/L TDS
-31 pHmV	0.2 ppt
-13 ORPmV	0.0 PSU
0.458 mS/cm	
0.0 NTU	

1528 A. Rohrbaugh takes GPS coordinates, but had to step 15 to 20 ft. north of the pump house to get satellites.

1529 A. Dahl collects sample RI-14 from 1490 Ohio St. (home of Kirk and Kathy Hall).

1540 head to (b) (6) Penn Ave owned by (b) (6), tenant is (b) (6). The Halls would like the tenant to vacate due to elevate arsenic, but the ~~tenant~~ tenant/ive does not want to.

1548 begin purge of well; the spigot is located at the NE corner of the home at (b) (6) Penn Ave. well located 6-7 ft east of the spigot.

1551 A. Rohrbaugh takes photo #6 facing SE of the spigot in the foreground and the well in the background (where

10/31/2012 Rock Island

the wooden post is).

1554 A. Rohrbaugh collects GPS coordinates at the well.

1600 A. Dahl takes nitrite (0 ppm) and nitrate (50+ ppm). A. Rohrbaugh takes photo #7 facing S of the nitrate strip result due to the high result.

1604 water quality parameters:

14.23 °C	7.11 mg/L DO
7.01 pH	0.376 g/L TDS
-15 pHmV	0.3 ppt
43 ORPmV	0.0 PSU
0.589 mS/cm	
3.5 NTU	

1605 A. Dahl collects RI-15. note: well and spigot are at the edge of an orchard, among trees.

1613 arrive at (b) (6) Center St, owner is in garage, but he says they are on city water. There is an irrigation well but it has been shut down for the winter and cannot be sampled.

1617 knock at (b) (6) Center St., owner has a private well, which she thinks it is behind her neighbors (b) (6) Center St.)

10/31/2012 Rock Island

she says the entire neighborhood is on the well, they all use it for irrigation, but they drink the city water.

1629 arrive at (b) (6) to knock, and they received a letter. Their well is located in the front yard, north of the house, (b) (6) Penn (b) (6) (b) (6). They participated in the county sampling and gave us a copy of the results. The arsenic result was 0.0179 mg/L which exceeds the MCL. The County told them the concentration was ok, but it exceeds the MCL. A. Dahl obtained their phone numbers home: (b) (6) and cell: (b) (6). The (b) (6) said there are four other households that get water from their well.

1725 begin well purge from spigot at the NW corner of the home of (b) (6) (b) (6)

1729 A. Dahl takes photo #8 of spigot facing SE. they use the water to irrigate but buy drinking water.

1730 A. Dahl takes GPS coordinates.

1731 Water quality parameters:

10/31/2012 Rock Island

14.59 °C	2.21 mg/L DO
7.18 pH	0.393 g/L TDS
-24 pH mV	0.3 ppt
110 ORP mV	0.0 %t
0.614 ms/cm	
0.0 NTU	

1732 A. Dahl takes nitrite (0 ppm) and nitrate (10 ppm)

1734 A. Dahl collects RI-16. note the sample was taken from a hose. Also, they have only owned the home for 4 years and ~~the~~ know nothing about the well.

1750 drop A. Dahl off with OSC K. Parker to sample a well, while A. Rohrbaugh returns to BJ's truck stop to set up the truck.

1754 A. Rohrbaugh arrives at BJ's truck stop.

2040 leave BJ's Truck Stop.

Amanda Rohrbaugh 10/31/2012

11/2/12 Rock Island

Calibrate XRF A94848 (at Viking American mine)

Rdg #	Time	result	Std.
#1	0726	passed	Std 3.
#2	misfire —	0731	
#3	0731	Pb = ND	Null Block
#4	0735	Pb = 1074	NIST 2711
#5	0737	Pb = 132	" 2702
#6	0738	Pb = <15	" 2709a
#7	0739	→ Black material from commode water tank.	

— Detections —

Ba	= 3547	ppm
Ni	= 305	"
Cu	= 92	"
As	= 89	"
Rb	= 35	"
Sr	= 324	"
Zr	= 52	"
Ag	= 64	"

All others ND.

Rdg. # 8 0749 Black mat.

Ba	= 4943	ppm
Mn	= > 10%	ppm
Fe	= 51682	"
Ni	= 308	

11/2/12

11/2/12 Rock Island

Cu	= 88	ppm
Zn	= 178	
As	= 98	
Rb	= 33	
Sr	= 466	
Zr	= 45	
Ag	= 88	

— #9 —

Ti	2873	PPM
Ba	3707	
Mn	7107	
Fe	57160	
Ni	272	
Co	90	
Zn	159	
As	116	
Pb	17	
Sr	377	
Zr	39	

Spoke w/ K. Parker and emailed XRF information

XRF Complete + continue demob for YAM & Idaho Leon —

11/2/12

11/3/12 Rock Island RA

1130 A. Dahl arrives at the home of Curt Black at [redacted] Seattle, WA to pick up 3 additional samples collected by homeowners + submitted to C. Black after START departed site. C. Black measured nitrate/nitrite in the samples + then preserved them with nitric acid to pH < 2 and kept them on ice in cooler. Samples remained in the custody of A. Dahl through the weekend.

AJP 11/3/12

11/5/12 Rock Island RA

1300 A. Rohrbaugh entered final 3 samples into Scribe + packaged samples for shipment to MEC.

1510 L. Wilson delivered cooler to FedEx.

AJP 11/5/12

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Removal Assessment

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Logbook 2 of 2

7/8/11
+
10/31/12

"Rite in the Rain®"
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Phone

Project Rock Island Removal
Assessment
Douglas County, WA
OSC - Kathy Parker

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CONTENTS

PAGE	REFERENCE	DATE
	TechLaw Field Team Amy Dahl Laura Wilson (2011 only) Amanda Rohrbaugh	
	Curt Black - EPA Hydrogeologist (October 2012 only)	

7/8/11 Rock Island RA

0925 Arrive on Site - meet w (b) (6) (b) (6) Hope to collect water well samples at homes of (b) (6)

0952 Calibrate instrument - Horiba

0955 A.D. collect RI-0711-GW-01 at (b) (6) Riverside Dr

+ Field duplicate RI-0711-GW-02 home next door to (b) (6) s home on same well. GPS coordinates by A. Rohrbaugh. Photo facing west by A. Rohrbaugh, photo # 12

1007 Water quality parameters by A. Dahl:

pH 7.17
cond. 0.722 ms/cm
turb. 25 NTU
☆ D.O. 10.26
temp. 16.4 °C
Sal. 0.3 %

10:41 Depart site for water samples

10:43 Start running water at home of (b) (6)

10:46 Photo #1 facing north Amy Dahl

10:48 collect sample RI-0711-GW-03 by AD. extra volume for MS/MSD

10:56 water quality parameters w/ Horiba

7/8/11 Rock Island RA

10:56 pH ~~6.15~~ 6.13
cond 0.463 mS/cm
turb 24
☆ DO 10.81 mg/L
temp 15.6°C
Sal 0.01%

☆ DO probe not in sample container water samples directly from pump in well house

(b) (6) Riverside Drive

11:03 depart site

11:06 arrive at home of Dwayne Robins 5431 Penn ? ~~Ohio~~ Ave water running sprinkler

11:10 photo #2 facing NE by A.D. (b) (6) at (b) (6) Penn Ave - 3 houses on 1 well

11:12 A.D. collect sample RI-0711-GW-04 at (b) (6) Penn (b) (6)

11:17 pH 6.15 temp 15.7°C
cond 0.385 mS/cm Sal. 0.01%
turb 25
☆ DO 10.9 mg/L

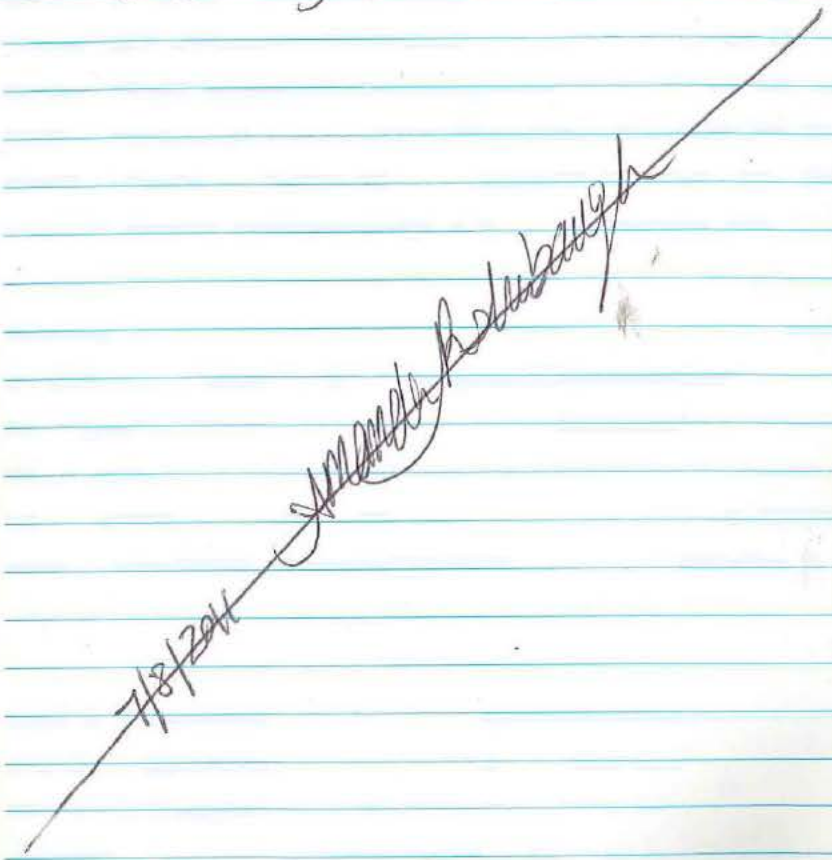
Well is 30-40 ft. bgs per Carl

7/8/11 Rock Island RA

11:20 photo #3 facing NE by AD of well head approximately 100 ft NE of spigot.

11:25 leave site & tour around Rock Island

11:45 Arrive back at Grant Johnson's see logbook #1



10/31/12 Rock Island RA

1750 arrive at (b) (6) Columbia ☆ (b) (6) location of data logger

1755 Begin purge water in Kitchen sink

1800 collect nitrate/nitrite reading: 10 ppm nitrate and 0 ppm nitrite

1803 collect water quality parameters:

temp = 15.03 °C
pH = 7.34
ORP = 111 mV
cond. = 0.451 mS/cm
turb = 0.9 NTU
DO = 10.17 mg/L
TDS = 0.293 g/L

1806 collect sample from Kitchen tap by A Dahl

1811 photo #9 facing west of well next to porch of house.

1812 take GPS reading at well.

1813 Depart site

1819 Arrive with A Dahl, K Parker, and C. Black at (b) (6) Riverside Dr home of (b) (6)

☆ same people as 1819 above

10/31/17 Rock Island

1822 Picked up water sample ~~for~~ collected by resident.
1824 Depart Site
1825 Arrive at (b) (6) Riverside Dr. location of well for data logger. Home of (b) (6)
1835 ADD Begin purging from spigot approximately 30 feet east of well.
1837 photo #10 facing west of spigot + water quality meter in foreground + well house in background.
1838 photo #11 facing South of pumphouse / well.
1842 collect GPS reading at well.
1845 collect nitrate / nitrite reading
nitrate = 5 to 10 ppm
nitrite = 0 ppm
1848 water quality parameters
13.72°C 0.362 g/L TDS
10/31/12 ADD 6.98 pH
ORP 109 mV
cond 0.566 mS/cm
0.0 NTU
13.95 mg/L DO

10/31/12 Rock Island

1852 A Dahl collected RI-97 and field duplicate RI-98
1900 6 measure nitrate / nitrite for RI-09. Nitrate = 5 to 10 ppm nitrite = 0 ppm
1925 Depart site. Return to Command Post.
1942 Depart command post
1944 Arrive at (b) (6) Riverside Dr with A Dahl and C. Black. Could not collect sample because water system not working.
2000 Depart site.
2004 arrive back to command post

10/31/2017

APPENDIX C

ANALYTICAL DATA AND QUALITY ASSURANCE REVIEWS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT: Data Release for Inorganics Results from the USEPA Region 10 Laboratory

PROJECT NAME: Rock Island RA/PA Removal Phase II

PROJECT CODE: SFP-008B

FROM: Gerald Dodo, Chemistry Supervisor
Office of Environmental Assessment
USEPA Region 10 Laboratory

TO: Kathy Parker, RPM
Office of Environmental Cleanup,
Emergency Response Unit,
USEPA Region 10

CC: Amy Dahl, Tech Law, Inc.

I have authorized release of this data package. Attached you will find the Metal results for the Rock Island RA/PA Removal Phase II project for the samples received on 11/01/2012 and 11/06/2012. For further information regarding the attached data, contact Katie Adams at (360) 871-8748.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

QUALITY ASSURANCE MEMORANDUM FOR INORGANIC CHEMICAL ANALYSES

Date: December 13, 2012

To: Kathy Parker, Project Manager
Office of Environmental Cleanup, Emergency Response Unit, US EPA Region 10

From: Theresa McBride, Chemist
Office of Environmental Assessment, US EPA Region 10 Laboratory

Subject: Quality Assurance Review of Rock Island RA/PA Removal Phase II for Metals

Project Code: SFP-008B
Account Code: 2013T10P303DC610KPLA00

CC: Amy Dahl, Tech Law, Inc.

The following is a quality assurance review of the results of the analysis of 23 total water samples for Metals analysis. These samples were submitted for the Rock Island RA/PA Removal Phase II Project. The analyses were performed by EPA chemists at the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

This review was conducted for the following samples:

12444200	12444201	12444202	12444203	12444204	12444205	12444206
12444207	12444208	12444209	12444210	12444211	12444212	12444213
12444214	12444215	12444216	12444217	12444218	12444219	12444220
12444221	12444222					

Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

The quality control measures which did not meet Laboratory/QAPP criteria are annotated in the title of each affected subsection with **"Laboratory/QAPP Criteria Not Met."**

For those tests for which the USEPA Region 10 Laboratory has been accredited by the National Environmental Laboratory Accreditation Conference (NELAC), all requirements of the current NELAC Standard have been met. The Region 10 Laboratory's Quality System has also been accredited to the standards of the National Environmental Laboratory Accreditation Conference (NELAC).

1. Sample Transport and Receipt – Laboratory/QAPP Criteria Not Met

Refer to the Corrective Action Notice dated 11/08/2012 for a record of observations made during sample receipt. These findings were administrative in nature and did not affect sample results.

2. Sample Holding Times

The concentration of an analyte in a sample or sample extract may increase or decrease over time depending on the nature of the analyte. For this reason, holding time limits are recommended for samples. The samples covered by this review met method holding time recommendations, where applicable.

3. Sample Preparation

Samples were prepared according to the method outlined in the SOP for these analytes for this type of matrix. No qualification of the data was required based on sample preparation.

4. Initial Calibration and Calibration Verification

The linear regression generated for the initial calibration met method criteria. The low point of the calibration curve is usually the Minimum Reporting Level (MRL) of the method. All calibration verification checks met the frequency and recovery criteria on the day of analysis. No qualification was required based on calibration or calibration verification.

5. Laboratory Control Samples

All laboratory control sample results met the recovery acceptance criteria for the method. No qualification was required based on laboratory control sample analysis.

6. Blank Analysis

The method blanks did not contain detectable levels of analytes which would require data qualification.

7. Internal Standards

All internal standards met instrument response criteria.

8. Duplicate Analysis

Duplicate analysis was performed on samples 12444200 and 12444214. Sample results which were greater than the LRS level were within the ± 20% RPD requirement. No qualification was required based on duplicate analysis.

9. Matrix Spike/Matrix Spike Duplicate Analysis

Matrix spike analyses were performed on samples 12444200 and 12444214. Sample results were within the 75-125% recovery requirements. No qualification was required based on matrix spike analyses.

10. Interferences

Serial dilution and interelement correction checks were analyzed to demonstrate that interferences were under control. All results of these checks met laboratory acceptance criteria.

11. Reporting Limits

Sample results above the MRL but below the LRS are reported to two significant figures; results above the LRS level are reported to three significant figures.

12. Data Qualifiers

The (U) qualifier was attached to all sample results that fall below the MRL. No other data qualification was required.

The definition for the data qualifier is as follows:

U - The analyte was not detected at or above the reported value.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Katie Adams at the Region 10 Laboratory, phone number (360) 871- 8748.

13. Definitions

Accuracy – the degree of conformity of a measured or calculated quantity to its actual value.

Duplicate Analysis – when a duplicate of a sample (DU), a matrix spike (MSD), or a laboratory control sample (LCSD) is analyzed, it is possible to use the comparison of the results in terms of relative percent difference (RPD) to calculate precision.

Internal standards – Compounds used to help evaluate instrument analytical performance for individual samples. Internal standards provide an instrument response for reference to accurately quantify the analytes for all associated instrumental analyses.

Laboratory Control Sample (LCS) – a clean matrix spiked with known quantities of analytes. The LCS is processed with samples through every step of preparation and analysis. Measuring percent recovery of each analyte in the LCS provides a measurement of accuracy for the analyte in the project samples. A laboratory control sample is prepared and analyzed at a frequency no less than one for every 20 project samples.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Sample analyses performed to provide information about the effect of the sample matrix on analyte recovery and measurement within the project samples. To create the MS/MSD, a project sample is spiked with known quantities of analytes and the percent recoveries of the analytes are determined.

Method Blank – An analytical control that is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background and reagent contamination. A method blank is prepared and analyzed for every batch of samples at a minimum frequency of one per every 20 samples. To produce unqualified data, the result of the method blank analysis is required to be less than the MRL and less than 10 times the amount of analyte found in any project sample.

Minimum Reporting Level (MRL) – the smallest measured concentration of a substance that can be reliably measured using a given analytical method.

Low Range Standard (LRS) – A level where it has been demonstrated that the instrument achieves defined levels of accuracy and precision, as checked with the Low Range Standard during analysis.

Precision – the degree of mutual agreement or repeatability among a series of individual results.

Relative Percent Difference – The difference between two sample results divided by their mean and expressed as a percentage.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

CORRECTIVE ACTION NOTICE

Project Name:	Rock Island RA	Date Received:	11/6/2012
Project Code:	SFP-008B	Sampling Agency	TechLaw Inc.
Account Code:	13T10P303DC610KPLA00	Sampler(s):	
Project Officer:	KATHY PARKER		
Phone:	206-553-0062	Recorder:	Amanda Rohrbaugh

Sample Numbers: 12444220-2

1	**Number of shipping containers received**
0	**Number of shipping containers received with errors**
1	**Number of chains of custody received**
0	**Number of chains of custody received with errors**

# Containers	Description of Shipment/Chain of Custody Container Issues Noted:
0	Shipping Container - Addressed incorrectly (must be addressed to 'Sample Custodian')
0	Shipping Container - Samples improperly packed for shipment
0	Shipping Container - Cooler Return information not provided
0	Custody Seals - Shipping Container received with seals missing/broken
0	Chain of Custody - Missing/Outdated Form
0	Chain of Custody - Missing/Incorrect chain of custody header information

3	**Number of samples received in this shipment**
3	**Number of samples received with critical and/or non-critical errors**
0	**Number of samples received with critical errors**

# Samples	Description of Shipment/Chain of Custody/Sample Container Issues Noted:
0	Chain of Custody - Missing/Incorrect EPA numbers
0	Chain of Custody - No analysis/Incorrect analysis listed for received samples
0	Chain of Custody - Samples listed not included in shipment
3	Unique Container ID* - Missing on COC and/or Not written on the container ***See Below***
0	Unique Container ID* - Incorrectly assigned
0	Sample Container - Labels Missing/Damaged/Illegible
0	Sample Container - EPA Sample Numbers Missing/Incorrect
0	Custody Seals - Criminal Samples received with seals missing/broken
0	Sample Container - Received at elevated temperature (above 6°C)
0	Sample Container - Sample preservation requirements not met
0	Sample Container - Broken/Leaking
0	Sample Container- Insufficient sample volume and/or incorrect sample container
3	Sample Container- The project code was missing from the sample labels.
0	

* per Region 10 Sample Receiving SOP

Additional Information

*****The container ID codes were not written on the sample bottles.**

Transmitted By: Karen Norton/ESAT Date: 11/8/2012

Original: File

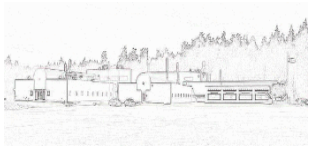
RSCC Contact: Jennifer Crawford

Project Officer: KATHY PARKER

Laboratory Director: Barry Pepich

Laboratory Staff: Gerald Dodo, Carol Haines, Katie Adams, Stephanie Le, Kim Wood

cc: Amy Dahl- TechLaw Inc.



US EPA Region 10 Laboratory

Multi-Analyte Final Report

Project Code : SFP-008B
Site : ROCK ISLAND RA/PA: REMOVAL ASSESSMENT
Contact : Kathy Parker
Account : 2013T10P303DC610KPLA00

Sample : 12444200

Description : GW-R1-01
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 6:00:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**2.9**	**ug/L**		11/14/12	2.5

Sample : 12444201

Description : GW-R1-02
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 11:47:00AM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**8.93**	**ug/L**		11/14/12	2.5

Sample : 12444202

Description : GW-R1-03
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 12:15:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**7.60**	**ug/L**		11/14/12	2.5

Sample : 12444203

Description : GW-R1-04
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 4:31:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**6.42**	**ug/L**		11/14/12	2.5

Sample : 12444204

Description : GW-R1-05
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 5:09:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**3.1**	**ug/L**		11/14/12	2.5

Sample : 12444205

Description : GW-R1-06
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 6:25:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**7.52**	**ug/L**		11/14/12	2.5

Sample : 12444206

Description : GW-R1-07
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 6:00:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**6.1**	**ug/L**		11/14/12	2.5

Sample : 12444207

Description : GW-R1-08
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 9:05:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**3.1**	**ug/L**		11/14/12	2.5

Sample : 12444208

Description : GW-R1-09
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 6:22:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**9.62**	**ug/L**		11/14/12	2.5

Sample : 12444209

Description : GW-R1-FB
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 6:45:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	Arsenic	0.63	ug/L	U	11/14/12	2.5

Sample : 12444210

Description : GW-R1-10
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 12:15:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**15.8**	**ug/L**		11/14/12	2.5

Sample : 12444211

Description : GW-R1-11
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 1:10:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**8.93**	**ug/L**		11/14/12	2.5

Sample : 12444212

Description : GW-R1-12
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 1:00:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**5.4**	**ug/L**		11/14/12	2.5

Sample : 12444213

Description : GW-R1-13
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 2:00:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**13.8**	**ug/L**		11/14/12	2.5

Sample : 12444214

Description : GW-R1-14
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 3:29:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	ug/L	U	11/14/12	2.5
7440360	Antimony	1.0	ug/L	U	11/14/12	2.5
7440382	**Arsenic**	**5.5**	**ug/L**		11/14/12	2.5
7440393	**Barium**	**50.4**	**ug/L**		11/14/12	2.5
7440417	Beryllium	0.050	ug/L	U	11/14/12	2.5
7440439	Cadmium	0.13	ug/L	U	11/14/12	2.5
7440473	Chromium	1.3	ug/L	U	11/14/12	2.5
7440484	**Cobalt**	**0.46**	**ug/L**		11/14/12	2.5
7440508	**Copper**	**4.7**	**ug/L**		11/14/12	2.5
7439921	**Lead**	**0.26**	**ug/L**		11/14/12	2.5
7439987	**Molybdenum**	**3.0**	**ug/L**		11/14/12	2.5
7440020	**Nickel**	**3.7**	**ug/L**		11/14/12	2.5
7782492	Selenium	1.3	ug/L	U	11/14/12	2.5
7440224	Silver	0.63	ug/L	U	11/14/12	2.5
7440280	Thallium	0.63	ug/L	U	11/14/12	2.5
7440611	**Uranium**	**2.2**	**ug/L**		11/14/12	2.5
7440622	**Vanadium**	**4.1**	**ug/L**		11/14/12	2.5
7440666	**Zinc**	**3.1**	**ug/L**		11/14/12	2.5

Parameter : ICP-SAS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440702	**Calcium**	**49100**	**ug/L**		11/13/12	2
7439896	**Iron**	**20**	**ug/L**		11/13/12	2
7439954	**Magnesium**	**15600**	**ug/L**		11/13/12	2
7439965	**Manganese**	**1890**	**ug/L**		11/13/12	2
7440097	**Potassium**	**3300**	**ug/L**		11/13/12	2
7440235	**Sodium**	**27000**	**ug/L**		11/13/12	2

Sample : 12444215

Description : GW-R1-15
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 4:05:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**22.4**	**ug/L**		11/14/12	2.5

Sample : 12444216

Description : GW-R1-16
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 5:34:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**7.50**	**ug/L**		11/14/12	2.5

Sample : 12444217

Description : GW-R1-97
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 6:52:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**5.8**	**ug/L**		11/14/12	2.5

Sample : 12444218

Description : GW-R1-98
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 6:52:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**5.7**	**ug/L**		11/14/12	2.5

Sample : 12444219

Description : GW-R1-99
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 6:06:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**3.2**	**ug/L**		11/14/12	2.5

Sample : 12444220

Description : GW-R1-17
Matrix : Water **Weight Basis :** N/A
Collected : 11/1/2012 11:45:00AM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**5.0**	**ug/L**		11/14/12	2.5

Sample : 12444221

Description : GW-R1-18
Matrix : Water **Weight Basis :** N/A
Collected : 11/2/2012 11:20:00AM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**11.2**	**ug/L**		11/14/12	2.5

Sample : 12444222

Description : GW-R1-19
Matrix : Water **Weight Basis :** N/A
Collected : 11/1/2012 3:48:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**0.65**	**ug/L**		11/14/12	2.5

Sample : 12444200 Sample Duplicate

Description : GW-R1-01
Matrix : Water **Weight Basis :** N/A
Collected : 10/30/2012 6:00:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	**Arsenic**	**2.9**	**ug/L**		11/14/12	2.5

Sample : 12444214 Sample Duplicate

Description : GW-R1-14
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 3:29:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	ug/L	U	11/14/12	2.5
7440360	Antimony	1.0	ug/L	U	11/14/12	2.5
7440382	**Arsenic**	**5.5**	**ug/L**		11/14/12	2.5
7440393	**Barium**	**50.2**	**ug/L**		11/14/12	2.5
7440417	Beryllium	0.050	ug/L	U	11/14/12	2.5
7440439	Cadmium	0.13	ug/L	U	11/14/12	2.5
7440473	Chromium	1.3	ug/L	U	11/14/12	2.5
7440484	**Cobalt**	**0.47**	**ug/L**		11/14/12	2.5
7440508	**Copper**	**4.6**	**ug/L**		11/14/12	2.5
7439921	**Lead**	**0.25**	**ug/L**		11/14/12	2.5
7439987	**Molybdenum**	**3.0**	**ug/L**		11/14/12	2.5
7440020	**Nickel**	**3.8**	**ug/L**		11/14/12	2.5
7782492	Selenium	1.3	ug/L	U	11/14/12	2.5
7440224	Silver	0.63	ug/L	U	11/14/12	2.5
7440280	Thallium	0.63	ug/L	U	11/14/12	2.5
7440611	**Uranium**	**2.2**	**ug/L**		11/14/12	2.5
7440622	**Vanadium**	**4.0**	**ug/L**		11/14/12	2.5
7440666	**Zinc**	**2.5**	**ug/L**		11/14/12	2.5

Parameter : ICP-SAS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440702	**Calcium**	**48800**	**ug/L**		11/13/12	2
7439896	Iron	20	ug/L	U	11/13/12	2
7439954	**Magnesium**	**15600**	**ug/L**		11/13/12	2
7439965	**Manganese**	**1880**	**ug/L**		11/13/12	2
7440097	**Potassium**	**3300**	**ug/L**		11/13/12	2
7440235	**Sodium**	**27700**	**ug/L**		11/13/12	2

Sample : 12444200 Matrix Spike

Description : GW-R1-01
Matrix : Water
Collected : 10/30/2012 6:00:00PM
Weight Basis : N/A

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440382	Arsenic	104	%Rec		11/14/12	2.5

Sample : 12444214 Matrix Spike

Description : GW-R1-14
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 3:29:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	96	%Rec		11/14/12	2.5
7440360	Antimony	100	%Rec		11/14/12	2.5
7440382	Arsenic	103	%Rec		11/14/12	2.5
7440393	Barium	99	%Rec		11/14/12	2.5
7440417	Beryllium	104	%Rec		11/14/12	2.5
7440439	Cadmium	100	%Rec		11/14/12	2.5
7440473	Chromium	97	%Rec		11/14/12	2.5
7440484	Cobalt	96	%Rec		11/14/12	2.5
7440508	Copper	91	%Rec		11/14/12	2.5
7439921	Lead	94	%Rec		11/14/12	2.5
7439987	Molybdenum	110	%Rec		11/14/12	2.5
7440020	Nickel	96	%Rec		11/14/12	2.5
7782492	Selenium	102	%Rec		11/14/12	2.5
7440224	Silver	102	%Rec		11/14/12	2.5
7440280	Thallium	96	%Rec		11/14/12	2.5
7440611	Uranium	106	%Rec		11/14/12	2.5
7440622	Vanadium	99	%Rec		11/14/12	2.5
7440666	Zinc	95	%Rec		11/14/12	2.5

Parameter : ICP-SAS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440702	Calcium	95	%Rec		11/13/12	2
7439896	Iron	101	%Rec		11/13/12	2
7439954	Magnesium	101	%Rec		11/13/12	2
7439965	Manganese	94	%Rec		11/13/12	2
7440097	Potassium	104	%Rec		11/13/12	2
7440235	Sodium	110	%Rec		11/13/12	2

Sample : 12444200 Matrix Spike#2

Description : GW-R1-01
Matrix : Water
Collected : 10/30/2012 6:00:00PM
Weight Basis : N/A

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440382	Arsenic	104	%Rec		11/14/12	2.5

Sample : 12444214 Matrix Spike#2

Description : GW-R1-14
Matrix : Water **Weight Basis :** N/A
Collected : 10/31/2012 3:29:00PM

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	97	%Rec		11/14/12	2.5
7440360	Antimony	101	%Rec		11/14/12	2.5
7440382	Arsenic	103	%Rec		11/14/12	2.5
7440393	Barium	96	%Rec		11/14/12	2.5
7440417	Beryllium	104	%Rec		11/14/12	2.5
7440439	Cadmium	100	%Rec		11/14/12	2.5
7440473	Chromium	97	%Rec		11/14/12	2.5
7440484	Cobalt	95	%Rec		11/14/12	2.5
7440508	Copper	92	%Rec		11/14/12	2.5
7439921	Lead	96	%Rec		11/14/12	2.5
7439987	Molybdenum	111	%Rec		11/14/12	2.5
7440020	Nickel	97	%Rec		11/14/12	2.5
7782492	Selenium	103	%Rec		11/14/12	2.5
7440224	Silver	103	%Rec		11/14/12	2.5
7440280	Thallium	96	%Rec		11/14/12	2.5
7440611	Uranium	107	%Rec		11/14/12	2.5
7440622	Vanadium	99	%Rec		11/14/12	2.5
7440666	Zinc	94	%Rec		11/14/12	2.5

Parameter : ICP-SAS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440702	Calcium	94	%Rec		11/13/12	2
7439896	Iron	124	%Rec		11/13/12	2
7439954	Magnesium	99	%Rec		11/13/12	2
7439965	Manganese	94	%Rec		11/13/12	2
7440097	Potassium	103	%Rec		11/13/12	2
7440235	Sodium	100	%Rec		11/13/12	2

Sample : IW110812ABL Blank

Description : Blank
Matrix : Liquid **Weight Basis :** N/A

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440382	Arsenic	0.63	ug/L	U	11/14/12	2.5

Sample : IW110812BBL Blank

Description : Blank
Matrix : Liquid **Weight Basis :** N/A

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	ug/L	U	11/14/12	2.5
7440360	Antimony	1.0	ug/L	U	11/14/12	2.5
7440382	Arsenic	0.63	ug/L	U	11/14/12	2.5
7440393	Barium	2.5	ug/L	U	11/14/12	2.5
7440417	Beryllium	0.050	ug/L	U	11/14/12	2.5
7440439	Cadmium	0.13	ug/L	U	11/14/12	2.5
7440473	Chromium	1.3	ug/L	U	11/14/12	2.5
7440484	Cobalt	0.037	ug/L	U	11/14/12	2.5
7440508	Copper	1.3	ug/L	U	11/14/12	2.5
7439921	Lead	0.13	ug/L	U	11/14/12	2.5
7439987	Molybdenum	0.063	ug/L	U	11/14/12	2.5
7440020	Nickel	0.38	ug/L	U	11/14/12	2.5
7782492	Selenium	1.3	ug/L	U	11/14/12	2.5
7440224	Silver	0.63	ug/L	U	11/14/12	2.5
7440280	Thallium	0.63	ug/L	U	11/14/12	2.5
7440611	Uranium	0.050	ug/L	U	11/14/12	2.5
7440622	Vanadium	1.0	ug/L	U	11/14/12	2.5
7440666	Zinc	2.5	ug/L	U	11/14/12	2.5

Parameter : ICP-SAS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440702	Calcium	30	ug/L	U	11/13/12	2
7439896	Iron	20	ug/L	U	11/13/12	2
7439954	Magnesium	50	ug/L	U	11/13/12	2
7439965	Manganese	2.0	ug/L	U	11/13/12	2
7440097	Potassium	700	ug/L	U	11/13/12	2
7440235	Sodium	100	ug/L	U	11/13/12	2

Sample : IW110812AL1 Lab Control Std

Description : Lab Control Standard

Matrix : Liquid **Weight Basis :** N/A

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440382	Arsenic	104	%Rec		11/14/12	2.5

Sample : IW110812BL1 Lab Control Std

Description : Lab Control Standard

Matrix : Liquid **Weight Basis :** N/A

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	107	%Rec		11/14/12	2.5
7440360	Antimony	99	%Rec		11/14/12	2.5
7440382	Arsenic	104	%Rec		11/14/12	2.5
7440393	Barium	103	%Rec		11/14/12	2.5
7440417	Beryllium	104	%Rec		11/14/12	2.5
7440439	Cadmium	102	%Rec		11/14/12	2.5
7440473	Chromium	103	%Rec		11/14/12	2.5
7440484	Cobalt	103	%Rec		11/14/12	2.5
7440508	Copper	99	%Rec		11/14/12	2.5
7439921	Lead	100	%Rec		11/14/12	2.5
7439987	Molybdenum	101	%Rec		11/14/12	2.5
7440020	Nickel	107	%Rec		11/14/12	2.5
7782492	Selenium	103	%Rec		11/14/12	2.5
7440224	Silver	104	%Rec		11/14/12	2.5
7440280	Thallium	98	%Rec		11/14/12	2.5
7440611	Uranium	97	%Rec		11/14/12	2.5
7440622	Vanadium	100	%Rec		11/14/12	2.5
7440666	Zinc	105	%Rec		11/14/12	2.5

Parameter : ICP-SAS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440702	Calcium	99	%Rec		11/13/12	2
7439896	Iron	103	%Rec		11/13/12	2
7439954	Magnesium	104	%Rec		11/13/12	2
7439965	Manganese	103	%Rec		11/13/12	2
7440097	Potassium	102	%Rec		11/13/12	2
7440235	Sodium	106	%Rec		11/13/12	2

Sample : IW110812AL2 Lab Control Std#2

Description : Lab Control Standard Dup.

Matrix : Liquid **Weight Basis :** N/A

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440382	Arsenic	104	%Rec		11/14/12	2.5

Sample : IW110812BL2 Lab Control Std#2

Description : Lab Control Standard Dup.

Matrix : Liquid **Weight Basis :** N/A

Parameter : ICP/MS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.8 - ICPMS 18 Elements

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	104	%Rec		11/14/12	2.5
7440360	Antimony	99	%Rec		11/14/12	2.5
7440382	Arsenic	102	%Rec		11/14/12	2.5
7440393	Barium	103	%Rec		11/14/12	2.5
7440417	Beryllium	103	%Rec		11/14/12	2.5
7440439	Cadmium	102	%Rec		11/14/12	2.5
7440473	Chromium	102	%Rec		11/14/12	2.5
7440484	Cobalt	103	%Rec		11/14/12	2.5
7440508	Copper	99	%Rec		11/14/12	2.5
7439921	Lead	101	%Rec		11/14/12	2.5
7439987	Molybdenum	101	%Rec		11/14/12	2.5
7440020	Nickel	107	%Rec		11/14/12	2.5
7782492	Selenium	102	%Rec		11/14/12	2.5
7440224	Silver	104	%Rec		11/14/12	2.5
7440280	Thallium	100	%Rec		11/14/12	2.5
7440611	Uranium	97	%Rec		11/14/12	2.5
7440622	Vanadium	101	%Rec		11/14/12	2.5
7440666	Zinc	104	%Rec		11/14/12	2.5

Parameter : ICP-SAS
Fraction : Total
Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN
Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440702	Calcium	98	%Rec		11/13/12	2
7439896	Iron	102	%Rec		11/13/12	2
7439954	Magnesium	103	%Rec		11/13/12	2
7439965	Manganese	103	%Rec		11/13/12	2
7440097	Potassium	102	%Rec		11/13/12	2
7440235	Sodium	107	%Rec		11/13/12	2

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DATA VALIDATION REPORT

Review by: Amy Dahl, TechLaw, Inc.

Report Date: January 25, 2013

Project/Site: Rock Island Removal Assessment

Laboratory: EPA Region 10 Manchester Environmental Laboratory

Project Number: 03034.1.001.058.00.11C.RS.10KP

This memorandum presents the quality assurance review for analysis of metals in 22 groundwater samples and one field blank sample collected during the October 2012 field sampling event for the Rock Island Removal Assessment at Rock Island, Douglas County, Washington. Specific details regarding sampling design and rationale are described in the Site Specific Sampling Plan (SSSP) and two Site Specific Sampling Plan Alteration Forms (SPAFs) for the project. The samples and analyses are identified below:

Field Sample Numbers	Laboratory ID	Matrix	Preparation and Analyses
GW-RI-01	12444200	Groundwater	Arsenic – prepared by EPA 200.2 and analyzed by EPA 200.8 (ICP-MS)
GW-RI-02	12444201	Groundwater	
GW-RI-03	12444202	Groundwater	
GW-RI-04	12444203	Groundwater	
GW-RI-05	12444204	Groundwater	
GW-RI-06	12444205	Groundwater	
GW-RI-07	12444206	Groundwater	
GW-RI-08	12444207	Groundwater	
GW-RI-09	12444208	Groundwater	
GW-RI-FB	12444209	Field Blank	
GW-RI-10	12444210	Groundwater	
GW-RI-11	12444211	Groundwater	
GW-RI-12	12444212	Groundwater	
GW-RI-13	12444213	Groundwater	
GW-RI-14	12444214	Groundwater	TAL metals (no mercury) plus uranium – prepared by EPA 200.2 and analyzed by EPA 200.7 (ICP-AES) and 200.8 (ICP-MS)

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Field Sample Numbers	Laboratory ID	Matrix	Preparation and Analyses
GW-RI-15	12444215	Groundwater	Arsenic – prepared by EPA 200.2 and analyzed by EPA 200.8 (ICP-MS)
GW-RI-16	12444216	Groundwater	
GW-RI-97	12444217	Groundwater	
GW-RI-98	12444218	Groundwater	
GW-RI-99	12444219	Groundwater	
GW-RI-17	12444220	Groundwater	
GW-RI-18	12444221	Groundwater	
GW-RI-19	12444222	Groundwater	

A Stage 2A data verification and validation was conducted in accordance with the USEPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use, dated January 2009.

The data were evaluated based on the following parameters:

Data Completeness

Preservation and Holding Times

Calibration

Interferences

Internal Standards

Blanks

Laboratory Control Samples

Duplicate Sample Analysis

Spike Sample Analysis

Field Duplicates

Overall Assessment

Data Completeness

All data necessary to complete a Stage 2A validation were provided. The data package included a Quality Assurance Review (QAR), results report for samples and method quality control samples (laboratory duplicate, matrix spike/matrix spike duplicate, method blank, and laboratory control standard/laboratory control standard duplicate), a corrective action notice (CAN), and an electronic data deliverable. The CAN indicated that the container identification and project code were missing from the sample labels. These findings were administrative in nature and did not affect sample results.

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Preservation and Holding Times

All samples were received intact and with the proper preservation. Samples were prepared and analyzed within the holding time of 180 days.

Calibration

The QAR indicated that all initial calibration and calibration verification criteria were met.

Interferences

The QAR indicated that serial dilution and interelement correction checks were analyzed and met laboratory acceptance criteria.

Internal Standards

The QAR indicated that all internal standards met instrument response criteria.

Blanks

Method blanks were prepared for each batch along with the samples and carried through the entire preparation and analysis procedures. The absolute concentration values of method blank results were less than the laboratory reporting limit.

One field blank was collected for this project and analyzed for arsenic, which was less than the laboratory reporting limit.

Laboratory Control Samples

Laboratory control samples (LCS) were prepared for each batch by spiking a solution of known concentration into reagent water and digesting along with the samples. Recoveries ranged from 97% to 107% and met laboratory criteria.

Duplicate Sample Analysis

A laboratory duplicate was prepared for samples GW-RI-01 (12444200) and GW-RI-14 (12444214). For analytes detected in both samples, the relative percent differences (RPDs) were either (1) less than 20%; or (2), the absolute difference was less than the reporting limit if either sample was <5x the reporting limit.

Spike Sample Analysis

A matrix spike and matrix spike duplicate (MS/MSD) were prepared from samples GW-RI-01 (12444200) and GW-RI-14 (12444214). Recoveries ranged from 91% to 124% and met laboratory criteria.

Field Duplicates

Sample GW-RI-98 (1244418) was collected as a field duplicate of GW-RI-97 (1244417). Both samples were analyzed for arsenic. The RPD is 1.7.

Overall Assessment of Data

No qualifications were added to the results based on the data validation.

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Data Qualifier Definitions

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

R	-	Reported value is "rejected." Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
J	-	The associated numerical value is an estimated quantity because the Quality Control criteria were not met.
UJ	-	The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.
NJ	-	Estimated value of a tentatively identified compound. (Identified with a CAS number.) ORGANICS analysis only.
U	-	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
NR	-	Result was not used from a particular sample analysis. This typically occurs when more than one result for a compound is reported due to dilutions and reanalyses.
Z	-	The chromatographic response does not resemble a typical fuel pattern.

APPENDIX D

SITE SPECIFIC SAMPLING PLAN AND ALTERATION FORMS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY RESPONSE UNIT

Site Specific Sampling Plan

Project Name: Rock Island Removal Assessment Site ID: 10KP

Author: Amy Dahl Company: TechLaw, Inc. Date Completed: 7/7/2011

This Site Specific Sampling Plan (SSSP) is prepared and used in conjunction with the Quality Assurance Plan (QAP) for the Emergency Response Unit for collecting samples during this Removal Program project. The information contained herein is based on the information available at the time of preparation. As better information becomes available, this SSSP will be adjusted.

When inadequate time is available for preparing the SSSP in advance of the sampling event, a Field Sampling Form may be prepared on-site immediately prior to sampling. This full length version of the SSSP is written after the sampling event and the completed Field Sampling Form attached to it.

1. Approvals

Name, Title	Telephone, Email, Address	Signature
Kathy Parker **On Scene Coordinator**	206-553-0062, parker.kathy@epa.gov USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	
Michael Boykin **alt ERU Quality Assurance Coordinator**	206-553-6362, boykin.michael@epa.gov USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	

I. Project Management and Organization

2. Personnel and Roles involved in the project:

Name	Telephone, Email, Company, Address	Project Role	Data Recipient
Kathy Parker	206-553-0062, parker.kathy@epa.gov USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	On Scene Coordinator	Yes
Amy Dahl	206-577-3050, adahl@techlawinc.com TechLaw, Inc., 101 Yesler Way, Suite 600, Seattle, WA 98104	Author of SSSP, START Project Manager	Yes
Michael Boykin	206-553-6362, boykin.michael@epa.gov USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	ERU Quality Assurance Coordinator	No
Paul Swift	206-577-3058, pswift@techlawinc.com TechLaw, Inc., 101 Yesler Way, Suite 600, Seattle, WA 98104	START Quality Assurance Reviewer	Yes
MEL Region 10 Lab	360-871-8728, dodo.gerald@epa.gov 7411 Beach Drive E Port Orchard, WA 98366	Gerald Dodo, metals analysis	Yes

TriMatrix Labs	616-975-4500, harveylm@trimatrixlabs.com 5560 Corporate Exchange Court SE Grand Rapids, Michigan 49512	Lisa Harvey, pesticide analysis	No

3. Physical Description and Site Contact Information:

Site Name	Rock Island, WA		
Site Location	(b) (6) Riverside Drive, Rock Island, WA		
Property Size	Lot		
Site Contact	(b) (6)	**Phone Number:** (b) (6)	(cell)
Nearest Residents	next door	**Direction:** east	
Primary Land Uses Surrounding the Site	Residential and cherry orchards		

4. The proposed schedule of project work follows:

Activity	Estimated Start Date	Estimated Completion Date	Comments
SSSP Review/Approval	7/7/2011	7/7/2011	
Mobilize to / Demobilize from Site	7/7/2011	7/8/2011	
Sample Collection	7/8/2011	7/8/2011	
Laboratory Sample Receipt	7/12/2011	7/12/2011	
Laboratory Analysis	7/12/2011	8/2/2011	Trimatrix (pesticides) and R10 lab (metals)
Data Validation	8/2/2011	8/12/2011	R10 QAO validation

5. Historical and Background Information

Describe briefly what you know about the site that is relevant to sampling and analysis for this investigation.

On June 8, 2011, EPA received a Preliminary Assessment petition from a resident of Rock Island, (b) (6), to investigate the silicon plant in Rock Island, WA. He believed the plant was the source of arsenic (b) (6). He provided historical analytical data on his and the City's well water as well as metals analyses of hair from three family members. He also collected a soil sample from an area near the plant's lagoons and had it analyzed for metals. All three media showed the presence of arsenic and other metals above acceptable levels. While arsenic is known to occur naturally in this area, the concentrations in the soil and ground water samples appear to be substantially higher than can be reasonably attributed to natural sources.

Sampling of the silicon plant property will be addressed during the Site Assessment Unit's Site Assessment. This Removal Assessment sampling event will focus on the area around the (b) (6) residence with the goals of determining the pervasiveness of soil and groundwater contamination and attempting to determine the source and receptors.

6. Conceptual Site Model

Example: Contaminant: Mercury
Transport Mechanism: vapor moving on air currents
Receptors: people living in the house

Contaminants: Aluminum, antimony, arsenic, cadmium, lead, copper, mercury, uranium, pesticides
Transport Mechanisms: drinking ground water, inhalation and ingestion of soil dust
Receptors: residents of Rock Island, ecological species

7. Decision Statement

Examples: 1) Determine whether surface contamination exceeds the established action level;
2) Determine appropriate disposal options for contaminated materials.

The decision(s) to be made from this investigation is/are to:

1) Determine if concentrations of metals and pesticides in soil and groundwater exceed applicable risk action and background levels

8. Action Level

State the analyte, concentration, and units for each selected action level. Describe the rationale for choosing each action level and its source (i.e. MTCA, PRG, ATSDR, etc.) Example: The action level for total mercury in soil is 6.7 mg/kg (from Regional Screening Level residential).

PRGs:
Soil: MTCA-A residential
RSL- residential and protection of groundwater for MCL
Drinking water: MCL
Sediment: NOAA SQUIRT TELs

Analytes:
Aluminum, antimony, arsenic, cadmium, lead, copper, mercury, uranium, pesticides

II. Data Acquisition and Measurement Objectives

9. Site Diagram and Sampling Areas

A Sampling Area is an area within in which a specific action will be performed.
Examples : 1) Each drum on the site is a Sampling Area;
2) Each section of sidewalk in front of the residence is a Sampling Area;
3) Each sampling grid section is a Sampling Area.

- One drinking water sample from (b) (6) private well
- Two soil samples in (b) (6) ard near well (0-6 inches and 3-3.5 feet)
- One drinking water sample from (b) (6) private well (1.0 mile north from (b) (6)
- One drinking water sample from (b) (6) private well (0.5 mile west from (b) (6)
- One soil and one sediment in area impacted by silicon plant smoke
- Two background soil samples from Kirby Billingsley Hydro Park, approximately 5 miles west of (b) (6) s property

10. The Decision Rules

These can be written as logical If…, Then.. statements. Describe how the decisions will be made and how to address results falling within the error range of the action level. Examples: 1) In the Old Furnace Sampling Area, the soil in the area around the furnace structure will be excavated until sample analysis with XRF shows no mercury concentrations in surface soil above the lower limit of the error associated with the action level, 18.4 mg/kg. 2) If the concentrations of contaminants in a SA are less than the lower limit of the error associated with the action level, then the area may be characterized as not posing an unacceptable risk to human health or the environment and may be dismissed from additional RP activities. The area may be referred to other Federal, State or Local government agencies.

The following statement(s) describe the decision rules to apply to this investigation:

If analytical results for target analytes in the samples exceed action levels or background, then the sample locations may be considered for potential further actions as determined by the OSC or SAM.

If results are under action levels and background, it may be determined that no further action is

necessary.

11. Additional Information Needed for the Decision Rule

What additional information needs to be collected to make the decisions using the analytical data: action levels, climate history, direction of water flow, etc. Examples: Current and future on-site and off-site land use; wind direction, humidity and ambient temperature.

The following inputs to the decision are necessary to interpret the analytical results:

- Well logs for the three private wells (depth to groundwater)
- Direction of groundwater flow
- Historical analytical data on well water samples
- Wind direction patterns
- Toxic Release Inventory Data for silicon plant and limits on air, water discharge permits and RCRA waste generation permit if applicable.

12. Sampling and Analysis

For each SA, describe:

1. *sampling pattern (random, targeted, scheme for composite)*
2. *number of samples, how many to be collected from where, and why*
3. *sample type (grab, composite)*
4. *matrix (air, water, soil)*
5. *analytes and analytical methods*
6. *name and locations of off-site laboratories, if applicable.*

Soil/sediment Samples:

1. Targeted sampling
2. Three soil samples, one sediment sample, one field duplicate, and two background samples. Two soil samples and one duplicate will be collected from (b) (6) property (sample and duplicate from 0-6" and approximately one sample 3' bgs). One surface soil and one sediment sample will be collected near the pond south of the silicon plant. The background samples (surface and approximately 3 feet bgs) will be collected at Kirby Billingsley Hydro Park approximately 5 miles west of (b) (6) property, upgradient of the prevailing wind direction (i.e., prevailing wind comes from the west).
3. Grab
4. Soil
5. TAL metals and uranium by 6010/6020, mercury by 7471 and organochloride pesticides by 8081.
6. MEL will perform the metals and uranium analyses and the pesticide analysis will be subcontracted to TriMatrix Lab in Michigan.

Groundwater Samples:

1. Targeted sampling.
2. Three drinking water well samples, a field duplicate, and a rinsate blank.
3. Grab
4. Groundwater
5. TAL metals and uranium by 200.8 and organochloride pesticides by 8081.
6. MEL will perform the metals and uranium analyses and the pesticide analysis will be subcontracted to TriMatrix Lab in Michigan.

13. Applicability of Data (place an X in front of the data categories needed, explain with comments)

Do the decisions to be made from the data require that the analytical data be:
1) definitive data, 2) screening data (with definitive confirmation) or 3) screening data (without definitive confirmation)?

*_X_A) **Definitive data** is analytical data of sufficient quality for final decision-making. To produce definitive data on-site or off-site, the field or lab analysis will have passed full Quality Control (QC) requirements (continuing calibration checks, Method Detection Limit (MDL) study, field duplicate samples, field blank, matrix spikes, lab duplicate samples, and other method-specific QC such as surrogates) AND the analyst will have passed a Precision and Recovery (PAR) study AND the instrument will have a valid Performance Evaluation sample on file. This category of data is suitable for: **1) enforcement purposes, 2) determination of extent of contamination, 3) disposal, 4) RP verification or 5) cleanup confirmation.***
Comments:

_____*B) **Screening data with definitive confirmation** is analytical data that may be used **to support preliminary or intermediate decision-making** until confirmed by definitive data. However, even after confirmation, this data is often not as precise as definitive data. To produce this category of data, the analyst will have passed a PAR study to determine analytical error AND 10% of the samples are split and analyzed by a method that produced definitive data with a minimum of three samples above the action level and three samples below it.*
Comments:

_____*C) **Screening data** is analytical data which has not been confirmed by definitive data. The QC requirements are limited to an MDL study and continuing calibration checks. This data can be used for making decisions: **1) in emergencies, 2) for health and safety screening, 3) to supplement other analytical data, 4) to determine where to collect samples, 5) for waste profiling, and 6) for preliminary identification of pollutants**. This data is not of sufficient quality for final decision-making.*
Comments:

14. Special Sampling or Analysis Directions

Describe any special directions for the planned sampling and analysis such as additional quality controls or sample preparation issues. Examples: 1) XRF and Lumex for sediment will be calibrated before each day of use and checked with a second source standard. 2) A field blank will be analyzed with each calibration to confirm the concentration of non-detection. 3) A Method Detection Limit determination will be performed prior to the start of analysis so that the lower quantitation limit can be determined. 4) If particle size is too large for accurate analyses, the samples will be ground prior to analysis. If the sample contains too much moisture for accurate analyses, the sample will be decanted and air dried prior to analysis.

15. Method Requirements

[Describe the restrictions to be considered in choosing an analytical method due to the need to meet specific regulations, policies, ARARs, and other analytical needs. Examples: 1) Methods must meet USEPA Drinking Water Program requirements. 2) Methods must achieve lower quantitation limits of less than 1/10 the action levels.3) Methods must be performed exactly as written without modification by the analytical laboratory.]

Methods for well water must meet USEPA Drinking Water Program requirements as well as addressing eco-rick from groundwater.

1. Well water sample analysis methods must meet USEPA Drinking Water Program requirements.
2. All analyses must be by methods acceptable to WDOE.

Methods will be selected to achieve minimum quantitation limits of less than 1/10 the action levels. Any analyses with non-detect results above the appropriate action level may be targeted for reanalysis by a more sensitive method. Additional sample volume will be collected and stored until the need for re-analysis can be determined.

16. Sample Collection Information

[Describe any activities that will be performed related to sample collection]

The applicable sample collection Standard Operating Procedures (SOPs) or methods will be followed and include:

03-01-xx Field Documentation Procedures – Maintaining a Field Logbook
04-02-xx Packaging and Shipping Procedures – Environmental Samples
02-03-xx Field Procedures - Equipment Decontamination
07-03-xx Soil Sampling and Analysis Procedures – Surface/near-surface Soil Sampling
06-03-xx Groundwater Sampling/Monitoring and Analysis Procedures – Pre-Sampling Activities
06-04-xx Groundwater Sampling/Monitoring and Analysis Procedures – Sampling Activities
Instrument SOPs: TechLaw's Innov-X XRF draft SOP
ERU SOG 119B Analytical Data Management

17. Optimization of Sampling Plan (Maximizing Data Quality While Minimizing Time and Cost)

[Describe what choices were made to reduce cost of sampling while meeting the needed level of data quality. Example: The XRF will be used in situ whenever possible to achieve accurate results. Reproducibility and accuracy of in situ XRF analyses will be checked by collecting, air drying, analyzing and comparing five in situ samples at the start of sampling. Where interferences are suspected, steps will be taken to eliminate the interferences by mechanisms such as drying, grinding or sieving the samples or analyzing them using the Lumex with soil attachment.]

III. Assessment and Response

A Sample Plan Alteration Form (SPAF) will be used to describe project discrepancies (if any) that occur between planned project activities listed in the final SSSP and actual project work. The completed SPAF will be approved by the OSC and QAC and appended to the original SSSP.

A Field Sampling Form (FSF) may be used to capture the sampling and analysis scheme for emergency responses in the field and then the FSF pages can be inserted into the appropriate areas of the final SSSP.

Corrective actions will be assessed by the sampling team and others involved in the sampling and a corrective action report describing the problem, solution, and recommendations will be forwarded to the OSC and the ERU QAC.

IV. Data Validation and Usability

The sample collection data will be entered into Scribe and Scribe will be used to print lab Chains of Custody. Results of field and lab analyses will be entered into Scribe as they are received and uploaded to Scibe.net when the sampling and analysis has been completed.

18. Data Validation or Verification will be performed by:

ERU's general recommendation on validation is that a minimum of CLP-equivalent stage IIA verification and validation be performed for every SSSP involving laboratory analyses. However, stage IIB is preferred if the lab can provide it. Dioxins should be validated at CLP-equivalent stage 4.

	Data Verification and Validation Stages						
Performed by:	I	IIA	IIB	III	IV	Verification	Other:
E and E QA Reviewer							
TechLaw QA Reviewer							
EPA Region 10 QAO					100%		
MEL staff							
Other:							

The format for sample number identification is summarized in Table 1. Sample collection and analysis information is summarized in Table 2.

Table 1
SAMPLE CODING

Project Name: Rock Island Removal Assessment **Site ID:** 10KP

SAMPLE NUMBER [(1)]		
Digits	**Description**	**Code (Example)**
1,2,3,4	Year and Month Code	
5,6,7,8	Consecutive Sample Number (grouped by SA as appropriate)	

SAMPLE NAME / LOCATION ID [(2)] ***(Optional)***		
1,2	Sampling Area	BG – Background DR – Drum LF – Landfill MW – Monitoring Well RS – Rinsate SI – Surface Impoundment TB – Trip Blank TK – Tank WL – Wetland WP – Waste Pile
3,4	Consecutive Sample Number	01 – First sample of Sampling Area
5,6	Matrix Code	AR – Air GW – Groundwater PR – Product SB – Subsurface Soil SD – Sediment SS – Surface Soil SW – Surface Water QC – Quality Control WT – Water
7,8	Depth (Optional)	01 (feet below ground surface)

Notes:
(1) The Sample Number is a unique, 8-digit number assigned to each sample.
(2) The Sample Name or Location ID is an optional identifier that can be used to further describe each sample or sample location.

Table 2. Sampling and Analysis - Rock Island Removal Assessment - 10KP

Data Quality	Sampling Area	Matrix	Sampling Pattern	Sample Type	Data Quality	Number of Field Samples	Analyte or Parameter	Method Number	Action Level	Method Quant. Limit	#/type of Sample Containers per Sample	Preservative	Hold Time	Field QC
Lab Analysis	(b) (6) property	Soil	Targeted	Grab	Definitive	2	TAL Metals +uranium Organochloride Pesticides	6010/6020 8081			2 x 8 oz glass jars	≤ 6° C	28 days 14 days	1 Duplicate 1 MS/MSD
Lab Analysis	Near silicon plant	Soil/ sediment	Targeted	Grab	Definitive	2	TAL Metals + uranium Organochloride Pesticides	6010/6020 8081			2 x 8 oz glass jars	≤ 6° C	28 days 14 days	
Lab Analysis	Drinking water wells	Water	Targeted	Grab	Definitive	3	TAL Metals + uranium Organochloride Pesticides	200.8 8081			1 x 1L poly 2 x 1L amber glass	HNO_3 pH < 2 ≤ 6° C	28 days 7 days	1 Duplicate 1 MS/MSD 1 rinsate blank
Lab Analysis	Background soil	Soil	Targeted	Grab	Definitive	2	TAL Metals + uranium Organochloride Pesticides	6010/6020 8081			2 x 8 oz glass jars	≤ 6° C	28 days 14 days	

Note: For matrix spike and/or duplicate samples, no extra volume is required for air (unless co-located samples are collected), oil, product, or soil samples except soil VOC or NWTPH-Gx samples (triple volume). Triple volume is also required for organic water samples (double volume for inorganic).

Table 3. Common Sample Handling Information

Analysis Type	Sub Analysis	Matrix	Analytical Method	Container Type	Minimum Volume	Preservative	Temperature/ Storage	Hold Time	Source
Metals	Metals Not including Mercury or Hexachrome. Includes TAL, PP, RCRA lists)	Solid	EPA 6000 / 7000 Series	Glass Jar	200 g	n/a	None	6 months	SW-846 ch. 3
		Aqueous	EPA 6000 / 7000 Series	PTFE or HDPE	600 mL	HNO_3 to pH < 2	Not listed	6 months	SW-846 ch. 3
	Mercury	Solid	EPA 7471B	Glass Jar	200 g	n/a	≤ 6° C	28 days	SW-846 ch. 3
		Aqueous	EPA 7470A	PTFE or HDPE	400 mL	HNO_3 to pH < 2	Not listed	28 days	SW-846 ch. 3
	Hexavalent Chromium, (Hexachrome, Cr+6)	Solid	Lab-specific soil extraction modification, EPA 7196A	Glass Jar	100 g	n/a	≤ 6° C	28 days to extraction	SW-846 ch. 3
		Aqueous	EPA 218.6 (Drinking Water)	PTFE or HDPE	400 mL	n/a	≤ 6° C	24 hours	SW-846 ch. 3
	XRF	Solid (in situ; on the ground surface)	6200	none	n/a	none	none	Analyze Immediately	n/a
		Solid (ex situ)	6200	plastic bag	200 g	none	none	6 months	n/a
VOCs	VOCs / BTEX	Solid	EPA 5035 / 8260B	*	*	*	*	2 days to lab / 14 days	SW-846 ch. 4
		Aqueous	EPA 8260B	Amber Vial with Septa Lid	2 x 40 mL	HCl to pH< 2	≤ 6° C (headspace free)	14 days	SW-846 ch. 4
SVOCs	SVOCs / PAHs	Solid	EPA 8270D	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	SW-846 ch. 4
		Aqueous	EPA 8270D	Amber Glass	2 x 1 L	n/a	≤ 6° C	7 days	SW-846 ch. 4
PCBs and Dioxins/Furans	PCBs	Solid	EPA 8082	Glass Jar	8 ounces	n/a	≤ 6° C	none	SW-846 ch. 4
		Aqueous	EPA 8082	Amber Glass	2 x 1 L	n/a	≤ 6° C	none	SW-846 ch. 4
	Dioxins/Furans	Solid	EPA 8280 or 8290	Glass Jar	8 ounces	n/a	≤ 6° C	none	SW-846 ch. 4
		Aqueous	EPA 8280 or 8290	Amber Glass	2 x 1 L	n/a	≤ 6° C	none	SW-846 ch. 4
Pesticides and Herbicides	Chlorinated Pesticides	Solid	EPA 8081	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	SW-846 ch. 4
		Aqueous	EPA 8081	Amber Glass	2 x 1 L	n/a	≤ 6° C	7 days	SW-846 ch. 4
	Chlorinated Herbicides	Solid	EPA 8151	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	SW-846 ch. 4
		Aqueous	EPA 8151	Amber Glass	2 x 1 L	n/a	≤ 6° C	7 days	SW-846 ch. 4
NWTPH	Gasoline-Range Organics	Solid	TPHs/NWTPH-Gx	Amber Glass Jar with Septa Lid	4 ounces	n/a	≤ 6° C (headspace free)	14 days	Method
		Aqueous	TPHs/NWTPH-Gx	Amber Vial with Septa Lid	2 x 40 mL	pH < 2 with HCl	≤ 6° C (headspace free)	7 days unpreserved 14 days preserved	Method
	Diesel-Range Organics	Solid	3510, 3540/3550, 8000	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	Method
		Aqueous	3510, 3540/3550, 8000	Glass Amber	2 x 1 L	pH < 2 with HCl	≤ 6° C	7 days unpreserved 14 days preserved	Method
Geotechnical	Particle Size	Solid	ASTM D-422	Glass Jar or	2 x 8	none	n/a	n/a	Method

Analysis Type	Sub Analysis	Matrix	Analytical Method	Container Type	Minimum Volume	Preservative	Temperature/ Storage	Hold Time	Source
	Analysis			Plastic Bag	ounce				
Miscellaneous	pH	Solid	EPA 9045	Glass Jar	8 ounces	n/a	n/a	Analyze Immediately	SW-846 ch. 3
		Aqueous	EPA 9040	PTFE	25 mL	n/a	n/a	Analyze Immediately	SW-846 ch. 3
	Total Organic Carbon (TOC)	Solid	SW-846 9060	Glass Jar	100 mL	n/a	$\leq 6^{o}$ C	28 days	SW-846
		Aqueous	EPA 415.1	PTFE or HDPE	200 mL	store in dark HCL or H_2SO_4 to pH <2	$\leq 6^{o}$ C	7 days unpreserved 28 days preserved	Method
	Cyanide	Solid	SW-846 9013	Glass Jar	5 g	n/a	$\leq 6^{o}$ C	14 days	SW-846 ch. 3
		Aqueous	SW-846 9010C	PTFE or HDPE	500 mL	NaOH to pH > 12	$\leq 6^{o}$ C	14 days	SW-846 ch. 3
	Conductivity	Aqueous	EPA 120.1	PTFE or HDPE	100 mL	n/a	n/a	Analyze Immediately	Method
	Hardness	Aqueous	EPA 130.1	PTFE or HDPE	1 x 1 L	HNO3 to pH<2	$\leq 6^{o}$ C	28 days	Method
	Total Suspended Solids	Aqueous	EPA 160.2	PTFE or HDPE	100 mL	n/a	$\leq 6^{o}$ C	7 days	Method
	Total Dissolved Solids	Aqueous	EPA 160.1	PTFE or HDPE	100 mL	n/a	$\leq 6^{o}$ C	7 days	Method
	Nitrate/nitrite	Aqueous	EPA 353.2	PTFE or HDPE	1 x 250 mL	H_2SO_4 to pH <2	$\leq 6^{o}$ C	28 days	Method
	Nitrate	Aqueous	SW-846 9210A	PTFE or HDPE	1,000 mL	n/a	$\leq 6^{o}$ C	28 days	SW-846 ch. 3
	Nitrite	Aqueous	SW-846 9216	PTFE or HDPE	25 mL	n/a	$\leq 6^{o}$ C	48 hours	SW-846 ch. 3, Method
	Fluoride	Aqueous	SW-846 9214	PTFE or HDPE	300 mL	n/a	$\leq 6^{o}$ C	28 days	SW-846 ch. 3
	Chloride	Aqueous	SW-846 9250	PTFE or HDPE	50 mL	n/a	$\leq 6^{o}$ C	28 days	SW-846 ch. 3
	Sulfate	Aqueous	SW-846 9035	PTFE or HDPE	50 mL	n/a	$\leq 6^{o}$ C	28 days	SW-846 ch. 3
	Sulfide	Solid	SW-846 9215	Glass Jar	1 x 4 ounces	Fill sample surface with 2N zinc acetate until moistened.	$\leq 6^{o}$ C (headspace free)	7 days	SW-846 ch. 3
		Aqueous	SW-846 9031	PTFE or HDPE	100 mL	4 drops 2N zinc acetate/100 mL sample; NaOH to pH>9.	$\leq 6^{o}$ C (headspace free)	7 days	SW-846 ch. 3

Key:

* = See individual methods. We typically collect 3xEnCore-type samplers and 1x40 mL VOA vial per sample, keep at $\leq 6^{o}$C with no chemical preservative, and they must be at the lab within 48 hours of collection.

C = Celsius

Cr = chromium

EPA = Environmental Protection Agency

g =grams

H2SO4 = sulfuric acid

HCL = hydrochloric acid

HDPE = high-density polyethylene

Hg = mercury

HNO_3 = nitric acid

L = liter

mL = milliliter

n/a = not applicable

NaOH = sodium hydroxide

PCBs = polychlorinated biphenyls

PTFE = polytetrafluoroethylene

RCRA = Resource Conservation and Recovery Act

SVOCs = semivolatile organic compounds

SW-846 = EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods

TAL = Target Analyte List

TPH = total petroleum hydrocarbons

VOA = Volatile Organic Analysis

VOCs = Volatile Organic Compounds

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY RESPONSE UNIT

Site Specific Sampling Plan Alteration Form

Project Name: Rock Island Site ID: 10KP

Author: Amy Dahl Company: TechLaw, Inc. Date Completed: 10/25/12

Changes from Final SSSP (include rationale, decision area, matrices, parameters, equipment, personnel, etc.:

A follow-up sampling event will take place October 30-31, 2012 to help determine where the elevated arsenic is coming from in well water in Rock Island, WA. Additional information such as well depth, age, and construction details will be collected in an effort to understand the source of arsenic in the area. On October 22, 2012, EPA is sending approximately 60 letters to residents in the area to participate in this study. Up to 60 well water samples will be submitted to Region 10 laboratory for arsenic analysis by 200.8 (ICP-MS). Samples may be collected by START or the homeowners. Nitrate/nitrite in all samples will be screened in the field by START using HACH test strips.

Please see the attached handout that will be filled out for each well water sample collected. This handout describes the sample collection procedure to be followed by homeowners who collect their own sample. Samples collected by START will be collected following the SSSP and contractor SOPs.

Please note that this sampling effort is being held in conjunction with a site inspection being conducted by the Site Assessment group led by Monica Tonel. The results from both sample collection events will be assessed by an EPA hydrogeologist in an effort to identify the source of arsenic in the Rock Island area.

Approvals of SSSP Alteration Form		
Name	**Title**	**Signature**
Kathy Parker	On-Scene Coordinator (OSC)	
Michael Boykin	Emergency Response Unit (ERU) Quality Assurance Coordinator (QAC) or alternate	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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Seattle, Washington 98101-3140
OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY RESPONSE UNIT

Site Specific Sampling Plan Alteration Form

Project Name: Rock Island Removal Assessment Site ID: 10KP

Author: Amy Dahl Company: TechLaw, Inc. Date Completed: 11/20/12

Changes from Final SSSP (include rationale, decision area, matrices, parameters, equipment, personnel, etc.:

Curt Black, OEA hydrogeologist, participated in the October 2012 sampling event to advise and direct sampling in consultation with the OSC, with two goals: 1) to determine where arsenic contamination is occurring in private area wells and 2) to characterize the groundwater in an attempt to trace arsenic contamination back to a discrete source. They placed water level sensors in six area wells to track groundwater levels over time. Data will be down-loaded from the sensors quarterly over the next year.

During the sampling event, one resident showed the samplers black precipitate in their toilet tank and swimming pool from their well water. The samplers performed field water-quality parameter and field-nitrate tests on the water and used field-XRF on the black precipitate to better characterize the well water. The hydrogeologist determined that he needed additional parameters to be able to characterize this specific well water: TAL metals (no mercury) including Ca, Mg, Na, K, Fe, plus U. One one-liter bottle, preserved with nitric acid, was dropped off at MEL on 11/1/2012 for these analyses. In discussions with the MEL metals chemist, it was agreed that Ca, Mg, K, Na, Fe will be analyzed by 200.7 and the rest of the metals will be analyzed by 200.8. This information will be used to characterize the chemical makeup of the water for comparison with other waters as more data become available. MEL Minimum Reporting Limits are acceptable for these analyses.

This is an integrated sampling with the Site Assessment Unit which simultaneously collected samples to characterizing groundwater at five additional area locations. The data from both sampling groups as well as data collected during previous sampling events will be compiled and used to support the above two goals.

Approvals of SSSP Alteration Form		
Name	**Title**	**Signature**
Kathy Parker	On-Scene Coordinator (OSC)	
Michael Boykin	Emergency Response Unit (ERU) Quality Assurance Coordinator (QAC) or alternate	

APPENDIX E

SAMPLE COLLECTION FORMS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Phone: _____

Address of well _____

Year well installed early 90s. Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 110 ft approx.

Distance in feet from the ground surface to the bottom of your well ("well depth"). 150 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: no sample - attached are copy of county sample results. their results were unlisted.
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-X	X	X

1008 W. Ahtanum Rd.
Union Gap, WA 98903
(509) 452-7707
Fax: (509) 452-7773

CASCADE ANALYTICAL, INC.

3019 G.S. Center Rd.
Wenatchee, WA 98801
(509) 662-1888
Fax: (509) 662-8183

Billing Code: 246
Batch #: 265899

INORGANIC CONTAMINANTS (IOC) ANALYTICAL REPORT

Send Report to: (b) (6) Rock Island, WA 98850	Bill to: (Client Name) Chelan Douglas Health District 200 Valley Mall Pkwy E Wenatchee, WA 98802
Date Collected: (MM/DD/YY) ___/___/___	System Group Type: (Circle one) A B Other: (Specify) X
Water System ID Number ___	System Name:
Lab -- Sample Number 105-151 -- 007508	County:
Sample Location: Gary Vaughn	Source Numbers(s) ___, ___, ___, ___, ___
Sample Purpose: (Check Appropriate Box) [X] RC - Routine/Compliance (satisfies monitoring requirements) [ ] C - Confirmation (confirmation of chemical result) [ ] I - Investigative (does not satisfy monitoring requirements) [ ] O - Other (specify)	Date Received: (MM/DD/YY) 5 / 3 / 12 Date Analyzed Reported: (MM/DD/YY) 5 / 10 / 12 Date Reported Received: (MM/DD/YY) 5 / 11 / 12 COMMENTS:
Sample Composition: (Check Appropriate Box) [X] S - Single Source [ ] B - Blended (List Multiple Source Numbers in Source Nos. field) [ ] C - Composite (Specify in Comments field) [ ] D - Distribution sample	Sample Type: (Check one) [ ] Pre-Treatment/Raw [ ] Post-Treatment/Finished [X] Unknown Sample Collected by: Client Phone Number: 509-884-6358

EPA/STATE REGULATED (PRIMARY)

DOH #	ANALYTE	RESULTS	UNITS	SRL	TRIGGER	MCL	MCL Exceeded	METHOD/Analyst Initials
0004	ARSENIC	0.00429	mg/L	0.003	0.010	0.010	No	EPA 200.9/RMV
0005	BARIUM	NA	mg/L	0.4	2	2		
0006	CADMIUM	NA	mg/L	0.002	0.005	0.005		
0007	CHROMIUM	NA	mg/L	0.02	0.1	0.1		
0011	MERCURY	NA	mg/L	0.0004	0.002	0.002		
0012	SELENIUM	NA	mg/L	0.01	0.05	0.05		
0110	BERYLLIUM	NA	mg/L	0.0008	0.004	0.004		
0111	NICKEL	NA	mg/L	0.01	0.1	0.1		
0112	ANTIMONY	NA	mg/L	0.006	0.006	0.006		
0113	THALLIUM	NA	mg/L	0.002	0.002	0.002		
0116	CYANIDE	NA	mg/L	0.1	0.2	0.2		
0019	FLUORIDE	NA	mg/L	0.5	4	4		
0114	NITRITE-N	NA	mg/L	0.2	0.5	1		
0020	NITRATE-N	NA	mg/L	2	5	10		
0161	TOTAL NITRATE/NITRITE	NA	mg/L	2	5	10		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Dear Rock Island Area Resident, (b) (6)

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephone: (b) (6) (b) (6)

Use this address

Address of well (b) (6) Rock Island, WA. 98850

Year well installed 1986 Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 23 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 28 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10/30/12 6:00 pm
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-01	10/0	10/30/12 ATO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well: (b) (6)

Name of well owner (b) (6) Telephone: (b) (6)

Address of well (b) (6) ROCK ISLAND WA 98850

Year well installed 1925 Used for drinking water? YES

Distance in feet from the ground surface to the water level in your well ("static level"). _____ ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 35 ft Hand dug

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10/30/12 11:47 AM
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-02	10/0	<2 10/30/12 AKO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owne (b) (6) Telephone (b) (6)

Address of well (b) (6) Rock Island, Wa,

Year well installed late 1930's or early 40's Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level") about 50-80 ft ?

Distance in feet from the ground surface to the bottom of your well ("well depth"). _____ ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: Techlaw @ 16:31 10/30/2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-04	5/0	10/30/12 AHD

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Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well own (b) (6) Telephone (b) (6)

Address of w (b) (6) Rock Island WA 98850

Year well installed ? Used for drinking water? NO

Distance in feet from the ground surface to the water level in your well ("static level"). ? ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). ? ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). ?

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: Techlaw@ 1709 10/30/2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-05	5to10/0	10/30/12 AYDD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owne (b) (6) Telephone (b) (6)

Address of well (b) (6) Rock Island WA 98850

Year well installed around 1978 Used for drinking water? Yes

Distance in feet from the ground surface to the water level in your well ("static level"). 20 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 35 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). n/a

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10/30/12 6:25pm
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-06	5 to 10 / 0	10/30/12 ADO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owne (b) (6) Telephone (b) (6)

Address of well (b) (6) Rock Island, WA. 98850

Year well installed 40 years + Used for drinking water? Yes

Distance in feet from the ground surface to the water level in your well ("static level"). 12 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 40 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 6:00 P.M. 10/30/12
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-07	10 to 20/0	10/30/12 ayo

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephone: (b) (6)

Address of well (b) (6) (b) (6)

Year well installed 2011 Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). _____ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). _____ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). BSJ 133

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10-30-12 / 9.05 PM
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-08	10/0	10/31/12

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owne (b) (6) _____ Telephon (b) (6)

Address of wel (b) (6) Rock Island WA. 98802

Year well installed 2005 Used for drinking water? Yes

Distance in feet from the ground surface to the water level in your well ("static level"). 55 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 55 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). AKM 209

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10-31-12
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-09	5 to 10/0	10/31/12 AR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well own(b) (6) Telephon(b) (6)

Address of we(b) (6) Rock Island 98850

Year well installed house built in 50's Used for drinking water? Yes

Distance in feet from the ground surface to the water level in your well ("static level"). _____ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). _____ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10/31/12 12:15 pm
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-10	10-20/0	10/31/12 ATD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well own (b) (6) _____ Telephon (b) (6)

Address of we (b) (6) Rock Island, WA 98850

Year well installed at least 20 yrs. old Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 3 ft (?)

Distance in feet from the ground surface to the bottom of your well ("well depth"). 25 ft (?)

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). difficult to get to well - poorly designed Pumphouse

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one. don't

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 1:10pm Oct. 31, 2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-11	10/0	10/31/12 ASD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephone: (b) (6)

Address of well (b) (6) Rock Island WA 98850

Year well installed prior to R.I. dam Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 30 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 70? ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). ?

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one. None

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10/31/12 1:00 pm
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-12	10/0	10/31/12 ayo

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

send reports/studies, he is interested in phosphorus.

Dear Rock Island Area Resident, (b) (6)

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephone (b) (6)

Address of well (b) (6) Rock Island, WA 98850

Year well installed 1984 Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 7 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 53 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). Ø

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one. Ø

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10/31/12 @ 2:00 pm
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-13	10-20/0	10/31/12

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephone: (b) (6)

Address of well (b) (6) Rock Island Wa

Year well installed 1960 Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 60? ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 60? ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: TechLaw @ 15:29 10/31/2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-14	0 | 0	10/31/12 AR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

tenants present at this location

Name of well owner (b) (6) Telephone (b) (6)

Address of well (b) (6) Loch Island Wa

Year well installed ? Used for drinking water? not currently

Distance in feet from the ground surface to the water level in your well ("static level"). ? ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). ? ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). ?

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: TechLaw @ 16:05 10/31/2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-15	50+/0	10/31/12 AR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owne (b) (6) _____ Telephone: _____

Address of well (b) (6), Rock Island 98850

Year well installed ? Used for drinking water? NO

Distance in feet from the ground surface to the water level in your well ("static level"). ? ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). ? ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). ?

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: TechLaw @ 17:34 10/31/2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-16	10/0	10/31/12 AR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephone: _____

Address of well (b) (6) _____

Year well installed before 1968 Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 31 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 47 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: collected by START 1952 10/31/12
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-97 & 98 sample + duplicate!	5 to 10 / 0	10/31/12 KR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephone: (b) (6)

Address of well (b) (6)

Year well installed < 1973 Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). 22.76 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). ~~[illegible]~~ ft 40'

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). no, hand dug

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: collected by START
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-99	10±2 ppm	10/31/12 AR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) [redacted] Telephone (b) (6) [redacted]

Address of well (b) (6) [redacted], Rock Island 98850

Year well installed 2007 Used for drinking water? Yes

Distance in feet from the ground surface to the water level in your well ("static level"). ____ft (STAT: 24'

Distance in feet from the ground surface to the bottom of your well ("well depth"). 50' ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). None seen

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 11:20 AM Nov 2 2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)	
	RI- 18	5/0	11-2-2012 [redacted]	50 Days HNO3

Can Cort Block (b) (6) [redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) _____ Telephone (b) (6)

Address of well (b) (6) Rock Island Wa.

Year well installed _____ Used for drinking water? NO

Distance in feet from the ground surface to the water level in your well ("static level"). 37.62 ft + 3.49 = 41.11 BGL

Distance in feet from the ground surface to the bottom of your well ("well depth"). 55.35 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). NOT FOUND

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 11-1-12 11:45 AM
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-17	10/0	11-1-12 CWK 50 DROPS

CALL CURT BLACK (b) (6)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Dear Rock Island Area Resident,

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well:

Name of well owner (b) (6) Telephon (b) (6)

Address of well (b) (6) Rock Island

Year well installed 1978 – used 1991 since Used for drinking water? Yes

Distance in feet from the ground surface to the water level in your well ("static level"). 166.7 ft

Distance in feet from the ground surface to the bottom of your well ("well depth"). 875 ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). NOT FOUND

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one.

If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 15:48 NOV 1 2012
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-19	10/0	11-1-2012 CWB

50 ppb

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY MANAGEMENT PROGRAM

Dear Rock Island Area Resident,

Thank you for participating in this sampling event, and for allowing us to analyze a sample of your well water. This will help us try and determine if there is a discrete source of arsenic in the Rock Island area that could be removed in order to reduce arsenic levels in area wells. It would also be very helpful to us if we could get the following information about you and your well: (b) (6)

Name of well owner (b) (6)

Address of well Rock Island WA 98850
See back for address of well owners

Year well installed 1950 ~~or 1959~~ 1949 - Used for drinking water? yes

Distance in feet from the ground surface to the water level in your well ("static level"). _____ft
dug well with concreat casing 50 or 60 ft well

Distance in feet from the ground surface to the bottom of your well ("well depth"). _____ft

Well ID (Not all wells have this – it would be on the well log and on a plaque on the well casing near the well cap. Usually six characters like a car license plate). _____

Well log (this is a paper the driller fills out with the depth of the well, etc.). Please provide us a copy if you have one. none

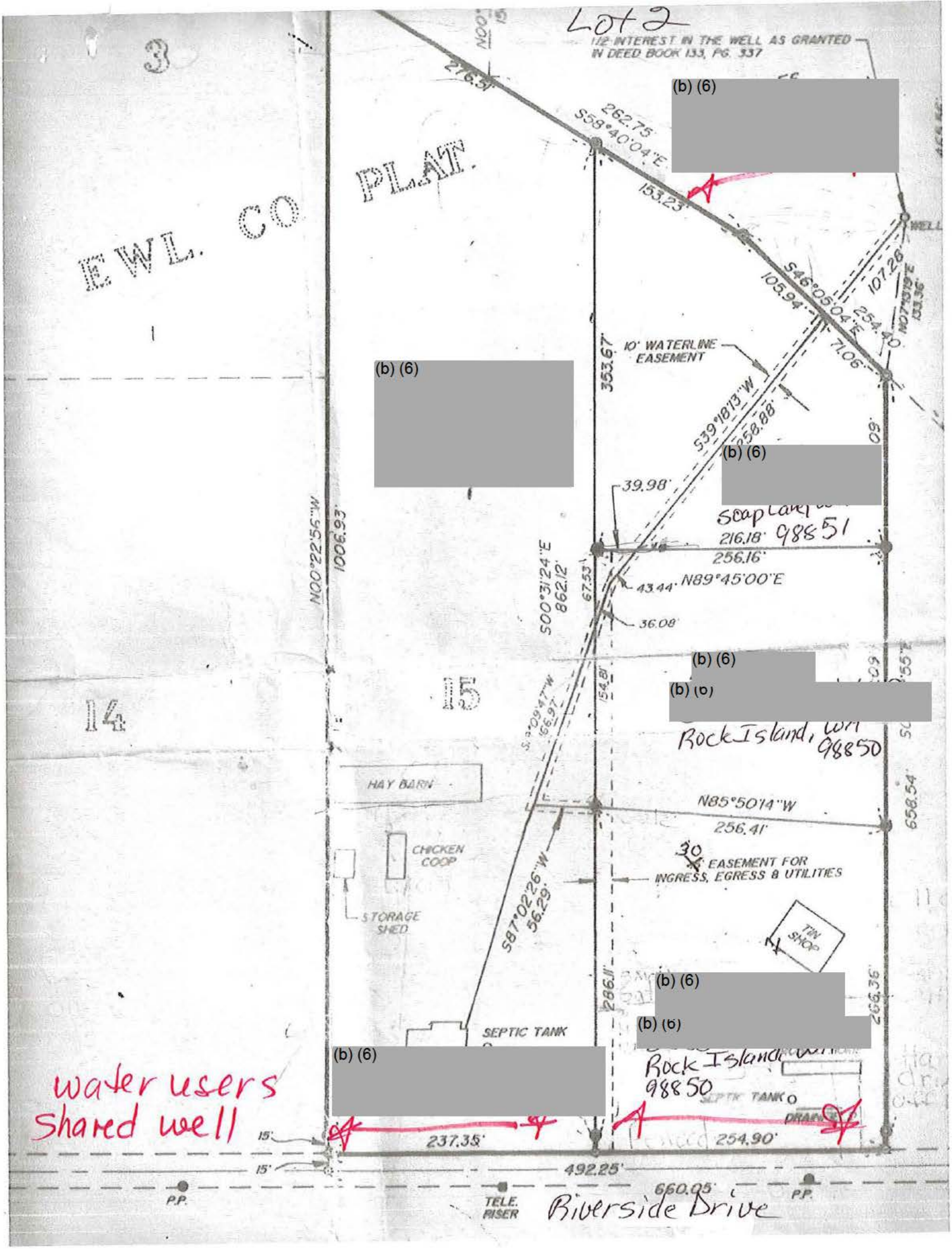
If you are collecting your own sample:

1. Collect the sample as close to the well as possible (e.g., from a spigot on the well).
2. Let the water from the sampling source run for at least five minutes before collecting the sample.
3. Wash hands thoroughly before collecting sample or better yet, wear new latex gloves. This is to prevent you from contaminating the sample with metals that could be in dust on your hands.
4. Remove cap and hold it in your hand. Do not touch the inside of the cap or container. Fill the container to the shoulder and recap.
5. Note the time and date of sample collection: 10/31/12 12:15 pm
6. Return the sample to the EPA vehicle for processing.

The samples will be screened in the field for nitrate content and sent to the EPA Region 10 laboratory near Port Orchard, Washington for analysis of arsenic. We will provide your results to you as soon as they are verified.

If you have any questions, please feel free to call Kathy Parker at (206) 321-3796 (cell) or email parker.kathy@epa.gov.

For EPA use:	Station Location	Nitrate/nitrite result	pH preservation (date/initials)
	RI-03	1-2/0	10/31/12 AHD


Lot 2
1/2 INTEREST IN THE WELL AS GRANTED IN DEED BOOK 133, PG. 337
(b) (6) [redacted]
3
EWL. CO PLAT.
276.51
262.75
S58°40'04"E
153.23
WELL
S46°05'04"E
105.94
107.26
254.
N07°13'19"E
133.36
71.06
10' WATERLINE EASEMENT
353.67
S39°18'13"W
258.88
(b) (6) [redacted]
(b) (6) [redacted]
N00°22'56"W
1006.93
39.98'
Soap Lake, WA
216.18' 98851
256.16'
S00°31'24"E
862.12
67.53
43.44' N89°45'00"E
36.08'
(b) (6) [redacted]
(b) (6) [redacted]
14
15
154.81
56.97
Rock Island, WA
98850
658.54
HAY BARN
N85°50'14"W
256.41'
CHICKEN COOP
30
EASEMENT FOR INGRESS, EGRESS & UTILITIES
STORAGE SHED
S87°02'26"W
56.29'
TIN SHOP
(b) (6) [redacted]
(b) (6) [redacted]
286.11
266.36
SEPTIC TANK
(b) (6) [redacted]
Rock Island, WA
98850
SEPTIC TANK
DRAINFIELD
water users
Shared well
15'
237.35'
254.90'
15'
492.25'
660.05'
P.P.
TELE. RISER
Riverside Drive
P.P.

1008 W. Ahtanum Rd.
Union Gap, WA 98903
(509) 452-7707
Fax: (509) 452-7773

CASCADE ANALYTICAL, INC.

3019 G.S. Center Rd.
Wenatchee, WA 98801
(509) 662-1888
Fax: (509) 662-8183

Billing Code: 246
Batch #: 265030

INORGANIC CONTAMINANTS (IOC) ANALYTICAL REPORT

Send Report to: (b) (6) Rock Island, WA 98850	Bill to: (Client Name) Chelan Douglas Health District 200 Valley Mall Pkwy E Wenatchee, WA 98802
Date Collected: (MM/DD/YY) ___/___/___	System Group Type: (Circle one) A B Other: (Specify)X
Water System ID Number	System Name:
Lab -- Sample Number 105-151 -- 005931	County:
Sample Location: Harris	Source Numbers(s) _____, _____, _____, _____, _____
Sample Purpose: (Check Appropriate Box) [X] RC - Routine/Compliance (satisfies monitoring requirements) [ ] C - Confirmation (confirmation of chemical result) [ ] I - Investigative (does not satisfy monitoring requirements) [ ] O - Other (specify)	Date Received: (MM/DD/YY) 4 / 11 / 12 Date Analyzed Reported: (MM/DD/YY) 4 / 18 / 12 Date Reported Received: (MM/DD/YY) 4 / 19 / 12 COMMENTS:
Sample Composition: (Check Appropriate Box) [X] S - Single Source [ ] B - Blended (List Multiple Source Numbers in Source Nos. field) [ ] C - Composite (Specify in Comments field) [ ] D - Distribution sample	Sample Type: (Check one) [ ] Pre-Treatment/Raw [ ] Post-Treatment/Finished [X] Unknown Sample Collected by: Client Phone Number: 509-884-2235

EPA/STATE REGULATED (PRIMARY)

DOH #	ANALYTE	RESULTS	UNITS	SRL	TRIGGER	MCL	MCL Exceeded	METHOD/Analyst Initials
0004	ARSENIC	0.00608	mg/L	0.003	0.010	0.010	No	EPA 200.9/PPT
0005	BARIUM	NA	mg/L	0.4	2	2		
0006	CADMIUM	NA	mg/L	0.002	0.005	0.005		
0007	CHROMIUM	NA	mg/L	0.02	0.1	0.1		
0011	MERCURY	NA	mg/L	0.0004	0.002	0.002		
0012	SELENIUM	NA	mg/L	0.01	0.05	0.05		
0110	BERYLLIUM	NA	mg/L	0.0008	0.004	0.004		
0111	NICKEL	NA	mg/L	0.01	0.1	0.1		
0112	ANTIMONY	NA	mg/L	0.006	0.006	0.006		
0113	THALLIUM	NA	mg/L	0.002	0.002	0.002		
0116	CYANIDE	NA	mg/L	0.1	0.2	0.2		
0019	FLUORIDE	NA	mg/L	0.5	4	4		
0114	NITRITE-N	NA	mg/L	0.2	0.5	1		
0020	NITRATE-N	NA	mg/L	2	5	10		
0161	TOTAL NITRATE/NITRITE	NA	mg/L	2	5	10		

EPA/STATE REGULATED (SECONDARY)

DOH #	ANALYTE	RESULTS	UNITS	SRL	TRIGGER	MCL	>MCL? Exceeded	METHOD/Analyst Initials
0008	IRON	NA	mg/L	0.1	0.3	0.3		
0010	MANGANESE	NA	mg/L	0.01	n/a	0.05		
0013	SILVER	NA	mg/L	0.1	n/a	0.1		
0021	CHLORIDE	NA	mg/L	20	n/a	250		
0022	SULFATE	NA	mg/L	50	n/a	250		
0024	ZINC	NA	mg/L	0.2	5	5		

EPA/STATE UNREGULATED (as source contaminants)

0014	SODIUM	NA	mg/L	5	--	n/a		
0015	HARDNESS	NA	mg/L	10	--	n/a		
0016	CONDUCTIVITY	NA	mg/L	70	n/a	700		
0017	TURBIDITY	NA	mg/L	0.1	--	n/a		
0018	COLOR	NA	mg/L	15	n/a	15		
0026	TOTAL DISSOLVED SOLIDS (TDS)	NA	mg/L	100	n/a	500		
0009	LEAD	NA		0.001	0.015	n/a		
0023	COPPER	NA		0.02	1.3	n/a		

OTHER

171	ORTHOPHOSPHATE	NA	mg/L	0.01				
172	SILICA	NA	mg/L	1.0				
402	ALUMINUM	NA	mg/L	0.05				
403	ALKALINITY	NA	mg/L	0.1				
404	MAGNESIUM	NA	mg/L	0.01				
405	CALCIUM	NA	mg/L	0.5				
406	AMMONIA	NA	mg/L	1.0				
	pH	NA						
	Total Organic Carbon	NA	mg/L					

105-151 005931

NOTES:

SRL (State Reporting Level): The minimum reporting level established by the Washington State Department of Health (DOH)

Trigger Level: DOH Drinking Water response level. Systems with compounds detected at concentrations in excess of this level may be required to take additional samples or monitor more frequently. Please contact your DOH drinking water regional office for further information.

MCL (maximum Contaminant Level): If the contaminant amount exceeds the MCL, please contact your regional DOH office to determine follow-up actions.

NA: Not Analyzed: In the results column, indicates this compound was not included in the current analysis.

ND (Not Detected): In the results column, indicates this compound was analyzed and not detected at a level greater than or equal to the SRL.

<(0.00X): The compound was not detected in the sample at or above the concentration listed (usually the lab MRL).

Comments: